HOME SAFETY Review

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VOL. 14, NO.1 - JANUARY 1957

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In this issue:
Material for the
National Campaign
for the
Prevention
of Falls

THE COVER: Gale Storm, holding onto handrail to prevent a fall, descends stairway. (N.S.C. photo.)

HOME SAFETY CONFERENCE

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The Home Safety Conference is the meeting point for representatives of national organizations conducting programs that include prevention of accidents in the home. It officially represents National Safety Council home safety service subscriber-members. Conference officers (with the exception of the staff secretary) serve voluntarily without pay as the council's safety officers and planning board for home safety program.

National Safety Council
Chartered by the Congress of the United States

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425 North Michigan Avenue
Chicago 11, Ill.

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950 California Street
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HOME SAFETY REVIEW

A Magazine for Home Safety Program Leaders

VOL. 14 **NO. 1**

JANUARY, 1957

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The HOME SAFETY REVIEW is published monthly (except July and August) by the National Safety Council, 425 North Michigan Avenue, Chicago 11, Ill.

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Printed in U.S.A. Price $.25 per copy, subscription $2.25 per year.

Statements and opinions advanced in signed articles are personal expressions of the authors, not necessarily those of the National Safety Council.

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Home Accidents a Serious Challenge

THE FACT THAT last year about 28,000 people were killed in home accidents presents a serious challenge to the members of the National Congress of Parents and Teachers.

The safety program of the National Congress of Parents and Teachers has illustrated, of course, our concern for the safety of children, but it is also a part of our concern for strengthening family life. We are especially concerned with the emotional impact of the home accident that might result from the feeling of guilt that would develop if a homemaker felt responsible for having failed to prevent the accident. The economic loss resulting from a home accident, whether in costs for medical expenses, loss of time by a wage earner, or employment of a housekeeper when the mother is disabled, can seriously threaten family security.

To cite a few illustrations of ways in which our resources can and are being used to promote home safety, we refer you to some home safety surveys in which State Congresses have cooperated with public health officials, some of which have been described in earlier issues of the Home Safety Review.

We appreciate the cooperation of many agencies in promoting our home safety programs. Included among these are the Accident Prevention Committee of the American Academy of Pediatrics, public and private medical associations, rural and farm organizations, such public agencies as fire departments and national, State, and local safety organizations. Red Cross provides instruction in first aid and home nursing which our members are encouraged to take. In December the National Congress of Parents and Teachers sent to program directors of radio and television stations throughout the country public service spot announcements which pointed up our concern for home safety and made specific suggestions for the prevention of home accidents. We are currently cooperating with the National Safety Council in the promotion of the Home Safety Inventory and with public and private health officials in the development of Poison Control Centers. These, then, are ways in which the membership of the National Congress of Parents and Teachers is using its resources to reduce home accidents and as a result to strengthen the home and family life that is the foundation on which America rests.

—**Mrs. P. D. Bevil**
Chairman
Committee on Safety
National Congress of
Parents and Teachers
Sacramento, Calif.

MARYLAND PROGRAM ON FALLS

By Ethel L. Garrison
Education Assistant
Home Accident Prevention Unit
Maryland Department of Health
Baltimore, Md.

STUDIES CONDUCTED by the Home Accident Prevention Unit of the Maryland Department of Health show that falls constituted 38.9 percent of the fatal home accidents during the year 1954; and 45.7 percent in 1955. Studies of nonfatal home accidents in certain areas of Maryland sufficiently severe to require hospitalization revealed an even larger percentage, 76 percent and 67 percent in two successive years. As in findings of studies done elsewhere, falls consistently predominated in the group aged 65 and over. The unanimous prevalence of falls in the home accident picture and the high fatality rate from this cause prompted concentration on this problem.

Consideration of seasonal distribution showed some resemblance in pattern over a 2-year period, but we were unable to determine any logical reason for the pattern or its discrepancies. The number of falls was lowest during March, April, May, and August of 1954 with peaks in June and September. In 1955 the lowest periods were April, May, June, and August with peaks in July and September and an additional peak in March.

In the studies conducted in 1954 arrangements were made with county health departments for followup on home accident cases to be done by nursing personnel. Their investigations gave the bedroom as the location where more than a fourth of the fatal falls occurred. More than a third of the nonfatal falls occurred on stairs; yard, kitchen, bedroom, and living room followed in close order with each of these locations responsible for more than 10 percent of the total.

Leaflet prepared jointly by the Maryland Dept. of Health, Baltimore City Health Dept., and the Baltimore Safety Council. Inside spread and back pages are shown on page 5.

The activity of the person when injured, besides ascending or descending stairs, was most often standing or walking on a level and getting into or out of chair or bed. The chief single environmental factor was slippery surface or object. More important contributing factors were personal. The highest number of cases were affected by poor judgment and lack of skill, followed by a high proportion with chronic disease or disability. Coincidentally a large number of cases lacked attendance or supervision.

Circumstances prevented followup of cases in the 1955 studies, but the chief items specified were loss of balance, slipping, stumbling, or tripping; these were followed by a group with known physical impairment. Environmental factors included, more frequently than others, using no light on stairs, obstacles in pathway, and wet floor.

The results of these studies were publicized through customary health department channels and a résumé was compiled for press release. Scripts and spot announcements were prepared for the media of radio and television.

A special pamphlet *What Do You Fall For?* was planned and developed as an added measure of education for the prevention of falls. This publication was the result of joint efforts of the Baltimore Safety Council, the Baltimore City Health Department and the Home Accident Prevention Unit of the Maryland Department of Health.

The pamphlet emphasized the importance of falls as a major cause of home accidents resulting in injury, disability, and death; the reasons for falls and the methods of preventing them; and the particular problem of falls among the elderly. To date 150,000 copies of this pamphlet have been printed. They were distributed through Baltimore Safety Council membership, Baltimore City Health Department Clinics, and County Health Departments, and the facili-

ties of two other organizations were utilized.

Bus and streetcar riders helped themselves to thousands of these pamphlets which were placed in racks provided on the Baltimore Transit Company bus and streetcars; and thousands more were distributed through the Laundrymen's Association in Baltimore by being placed in customer's bundles of laundry. Many of these pamphlets and related material reached the hands of the public during our exhibits at the Maryland State Fair and at the National Home Show during this year.

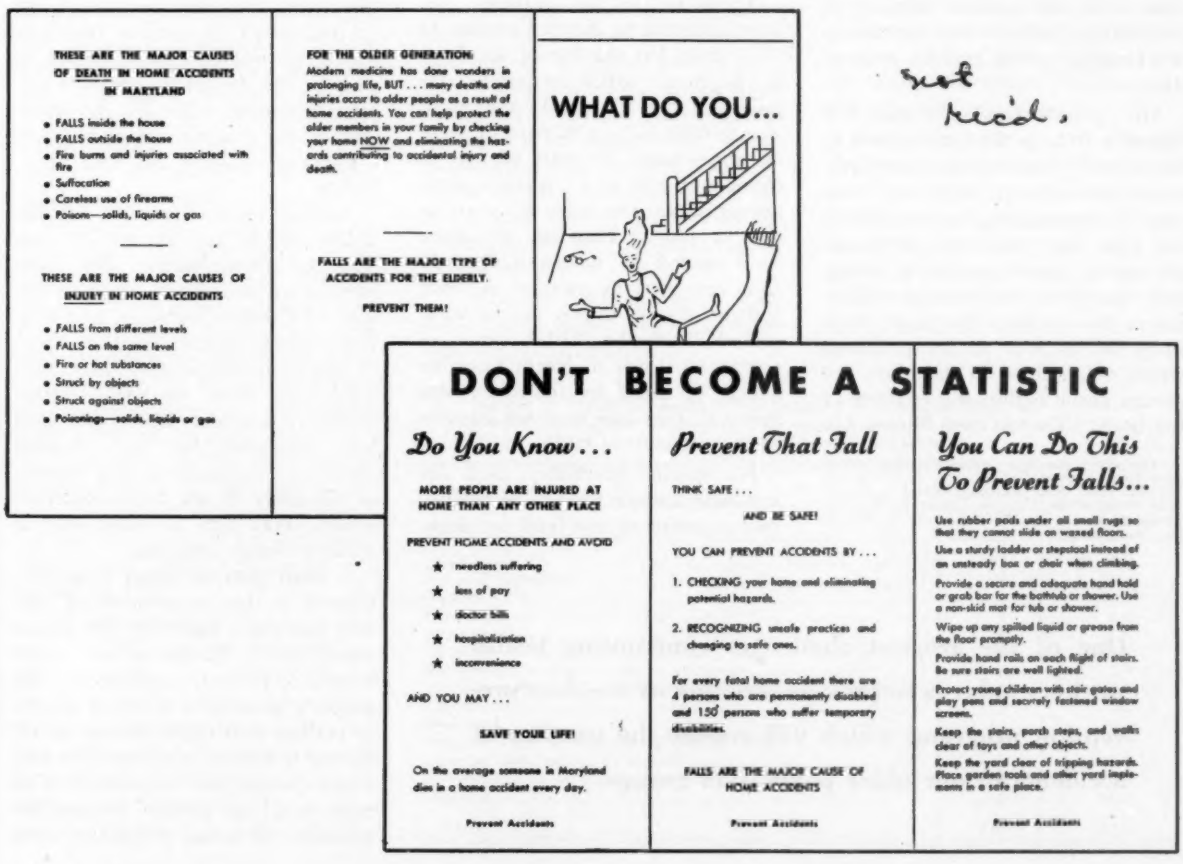
At the National Home Show in 1955 the Home Accident Prevention Unit's exhibit consisted of State maps showing areas where home accidents occurred and a pie chart which showed falls to be the predominant cause.

The 1956 Governor's Safety Health Conference, too, provided a means of reaching the public. A suitcase exhibit from the American Medical Association was used to pinpoint hazards in the home. Slogans are another device we used to emphasize falls as a cause of home accidents. These slogans have been put on outgoing letters from the Unit and, through the use of postage meter, stamped on envelopes sent out from the health department.

Printed material used in the program, but obtained from other sources includes instructions for baby sitters; material on child safety; use of handrails and proper lighting for stairs; safe use of ladders, scatter rugs, and floor wax; and the necessity of keeping passageways and stairs clear of obstacles.

As with other phases of home accident prevention, there is need for further exploration and investigation of home accidents due to falls. Known facts leave no doubt that many of these accidents can be prevented. Control of the environmental circumstances in the home is a responsibility of the individual; and the preponderance of personal factors including poor judgment, lack of skill, and physical impairment can be overcome by increased supervision of the affected individuals. It behooves those of us in the field of home safety to develop awareness and enlightenment of the public in the area of prevention. The tools of engineering and enforcement may be appropriate in other fields of safety, but success in this phase of public health seems to depend on education.

In view of these needs we were greatly pleased at the prospect of national coverage being given to a Falls Campaign. Knowledge that the National Safety Council is sponsoring concerted effort on this project will give added impetus in many areas. In Maryland we expect to continue concentration on accidents due to falls; and we intend to utilize all available assistance for the promotion of this campaign.


THESE ARE THE MAJOR CAUSES OF DEATH IN HOME ACCIDENTS IN MARYLAND
• FALLS inside the house
• FALLS outside the house
• Fire burns and injuries associated with fire
• Suffocation
• Careless use of firearms
• Poisons—solids, liquids or gas
THESE ARE THE MAJOR CAUSES OF INJURY IN HOME ACCIDENTS
• FALLS from different levels
• FALLS on the same level
• Fire or hot substances
• Struck by objects
• Struck against objects
• Poisonings—solids, liquids or gas
FOR THE OLDER GENERATION:
Modern medicine has done wonders in prolonging life, BUT . . . many deaths and injuries occur to older people as a result of home accidents. You can help protect the older members in your family by checking your home NOW and eliminating the hazards contributing to accidental injury and death.
FALLS ARE THE MAJOR TYPE OF ACCIDENTS FOR THE ELDERLY.
PREVENT THEM!
WHAT DO YOU...
DON'T BECOME A STATISTIC
Do You Know . . .
MORE PEOPLE ARE INJURED AT HOME THAN ANY OTHER PLACE
PREVENT HOME ACCIDENTS AND AVOID
★ needless suffering
★ loss of pay
★ doctor bills
★ hospitalization
★ inconvenience
AND YOU MAY . . .
SAVE YOUR LIFE!
On the average someone in Maryland dies in a home accident every day.
Prevent Accidents
Prevent That Fall
THINK SAFE . . .
AND BE SAFE!
YOU CAN PREVENT ACCIDENTS BY . . .
1. CHECKING your home and eliminating potential hazards.
2. RECOGNIZING unsafe practices and changing to safe ones.
For every fatal home accident there are 4 persons who are permanently disabled and 150 persons who suffer temporary disabilities.
FALLS ARE THE MAJOR CAUSE OF HOME ACCIDENTS
Prevent Accidents
You Can Do This To Prevent Falls...
Use rubber pads under all small rugs so that they cannot slide on waxed floors.
Use a sturdy ladder or stepstool instead of an unsteady box or chair when climbing.
Provide a secure and adequate hand hold or grab bar for the bathtub or shower. Use a non-skid mat for tub or shower.
Wipe up any spilled liquid or grease from the floor promptly.
Provide hand rails on each flight of stairs. Be sure stairs are well lighted.
Protect young children with stair gates and play pens and securely fastened window screens.
Keep the stairs, porch steps, and walks clear of toys and other objects.
Keep the yard clear of tripping hazards. Place garden tools and other yard implements in a safe place.
Prevent Accidents

ACCIDENT PREVENTION FOR OLDER PEOPLE

By Charles Cameron, Jr., M.D.

and Agnes F. Campbell

As HEALTH WORKERS in the twentieth century have gained insight into the mixed blessings that have come with the extension of the life span, they have directed greater attention to the degenerative conditions—diseases of the heart and blood vessels, cancer, arthritis, and diabetes—since it is the golden years which most frequently are marred by these conditions.* The detailed study of accidents which a number of health agencies have undertaken during the past five years has focused, however, on the particular significance of accidents to the aging population. We now know that accidents are the leading nondegenerative cause of death and disability among people over 50 years of age.

The National Safety Council has pointed out that in 1953 in the United States, 27 percent of the 95,000 fatal accidents occurred among persons who were 65 years of age or older, and that accidents ranked as the fifth leading cause of death in this age group (1) [page 8]. In the same year the greatest number of accidental deaths in any age group was among persons over 64 years of age.

Most geriatricians agree that it is desirable to keep the older person in his home environment, and the significant developments that have been made in home care programs during the past ten years have been encouraging. Safety specialists recognize that these developments will increase the accident potential since three out of four of the accidents which befall those in the older age groups occur within the confines of the home. The accident hazard has also followed geriatric patients into nursing and convalescent homes, and considerable attention is now directed to protecting these people from accidents when they are living in a "home away from home."

According to the statistics that were collected in North Carolina in 1953, falls led the list of accidents in the home which terminated fatally. Of the 169 deaths that were due to falls, 151, or 90 percent, were among persons 50 years of age or older, and 130, or 77 percent, were among those who were 65 years of age or older. Falls on the same level caused 89 deaths while falls from one level to another, as down a flight of steps to the floor or yard, caused 79 deaths. Other causes of accidental death in North Carolina which occurred in the older age group in the same year are listed in the accompanying table.

No specific morbidity rates are available because there is no centralized reporting of non-fatal accidents.

One of the greatest challenges confronting health workers today is to provide the kind of accident prevention programs which will reduce the number of accidents in our older population groups.

We know, however, that falls are a major cause of temporary and permanent disability among persons in older age groups. We are aware that fractures of the neck of the femur, particularly among women, are frequent, and that there is a seasonal concentration of this type of accident when streets, sidewalks, and steps are slippery. The National Health Survey revealed that impairments resulting from accidents were among the major causes of illness in urban populations (2).

Causes of Home Accidents

Authorities have identified two causes that home accidents which involve the aged are commonly attributed to: a physical condition which may lower the accident "threshold" and the older person's failure to recognize his inability to carry on activities at the same rate and intensity as he formerly did (3).

In the study of physical conditions which may lower the accident threshold, much attention has been directed to the slight, but progressive impairment of motor functions which, physiologists state, begins as early as the thirties and reaches significant degrees after 50. In many persons the changes are manifest as a physical weakness and easy fatigability.

Another physical factor is the disability which may accompany any acute or chronic illness. Few older persons are blessed with an unlimited span of sickness-free years, and relatively minor illnesses, such as those of the upper respiratory tract, may stubbornly resist therapy. Certain studies of accidents among the aged have suggested that such physical conditions as cardiovascular diseases or disorders of the musculoskeletal system, may play a major role in many accident fatalities.

A third physical factor to be considered is the impairment of sensory functions, especially the loss of visual acuity. Failure to have visual defects corrected, wearing of improperly prescribed or fitted glasses, or perhaps difficulties inherent in adjusting to bifocal or trifocal lens can, and do, contribute to accidents of all types in all age groups. Because the incidence of visual difficulties tends

*The above has been reprinted, with permission, from *Nursing Outlook*, vol. 4, No. 6, pp. 332-334, June 1956. *Nursing Outlook* is the official organ of the National League for Nursing, published by the American Journal of Nursing Co., New York, N. Y.

to increase as one grows older, it is a quite significant factor in considering the accident experience of older persons. Diminution of the senses of hearing and smell may also predispose to failure to hear and smell warnings of impending danger.

The second major factor—failure to recognize the inability to carry on former activities—is more complex, and it may be a manifestation of a person's entire mental and emotional acceptance of the aging process. This may relate to the older person's inability to focus attention as forcefully as formerly, or it may be concerned with his failure to remember the need to be cautious in undertaking many tasks. At other times, this condition is evidenced by a proud refusal to accept assistance in meeting everyday needs.

More Education and a Better Environment

The fundamentals of preventing home accidents among the aged are the same as for those in any other age group; they involve first, a modification in people's behavior patterns and second, an alteration in the environment in which they work and live. The safety worker's objective is to help people develop positive safety habits and attitudes, and to create an environment which is as nearly free of hazards as possible.

In attempting to establish an environment which is favorable to the accident-free growth and development of children, we have recognized the importance of working primarily with the parents. Health and safety workers have not yet accepted completely the importance of directing their approach to those adults who are responsible for the older persons in the household, although Chapman has advocated that all family safety activities be channeled through the "index" person in each household (4).

The situation regarding older persons is different in one important aspect, however. In order to make a successful approach to the younger adults in the household, a step-by-step educational program must be directed to the older person at the same time. Occupational safety specialists have long recognized that the availability of the finest safety equipment will not reduce the incidence of accidents unless workers are taught the reasons why such equipment is needed and what are the advantages of using it. The same augmenting effort is mandatory for successful accident prevention in homes where aged persons reside.

Dr. Cameron (M.D., Vanderbilt University; M.P.H., University of North Carolina School of Public Health) is chief of the Accident Prevention Section in the North Carolina State Board of Health, Raleigh, N. C., and is associate professor at the University of North Carolina School of Public Health in Chapel Hill.

Miss Campbell (Pennsylvania Hospital School of Nursing, Philadelphia; B.S., Vanderbilt University) is consultant nurse in the Accident Prevention Section in the same health department.

This article is based on a paper that was read at the geriatric nursing institute which was sponsored by the North Carolina League for Nursing in 1955.

In approaching the older resident in a home or institution, health workers must help him develop certain specific attitudes toward accident prevention. This entails much more than a general admonition to "be careful about accidents," which may induce only anxiety, if any reaction at all. Included among the habits and attitude patterns which are important for the older person to develop are:

1. Regular work and social schedules which do not conflict with the need for rest and sleep.

2. Recognition of periodic variations in energy and the ability to adjust his work and recreation to these variations.

3. Recognition and acceptance of limitations in the amount of work which can be accomplished and the need to reduce the speed with which work can be completed.

4. Realization that there may be a diminution of visual and auditory senses associated with the aging process and an understanding of why these defects should be corrected.

To "safety condition" the environment for the older person, members of the household who are responsible for his well-being may use these guides:

1. Provide him with a living area in the home where the need to climb stairs is reduced to a minimum.

2. Install handrails on all stairs, both inside and outside the home, especially in the cellar.

3. Keep stairs clear of objects and obstructions.

4. Install easily accessible light switches at both the top and the bottom of stairs, and provide lighting which will sufficiently illuminate the top and bottom steps.

5. Provide beds of sitting height and secure them so that they do not move or roll.

6. Remove such obstacles as footstools, electric cords, and other low furniture from the rooms which the older person uses. Sufficient light should reach all areas of these rooms, and, particularly, a light should be

Number of Accidental Deaths Which Occurred in Homes, on Farms, and in Resident Institutions in North Carolina in 1953 Among Persons 50 Years of Age and Older, According to Causes of Accidents

Causes of Accidents	Number of Deaths	Percentage of Total Number of Fatal Accidents
Falls	151	56.0
Fire and explosions	68	25.0
Machinery	16	6.0
Poisoning	7	2.6
Firearms	7	2.6
Blows from falling objects	7	2.6
Hot substances, corrosive liquids, and steam	5	1.8
Inhalation and ingestion of food, causing obstruction or suffocation	3	1.0
Electric current	1	0.4
Drowning	1	0.4
Bites and stings of venomous animals and insects	1	0.4
Other accidents caused by animals	1	0.4
Accidents caused by vehicles	1	0.4
Lightning	1	0.4
Total	270	100.0

placed near the bed and over the medicine chest.

7. Fasten rugs and carpets throughout the house securely. Slippery wax should not be used on the floors.

8. Keep clothing, such as dress hems and pants cuffs, mended. Shoe heels should be of rubber and be replaced as needed.

When teaching the older person how he can help himself to live out his life safely, health workers should include in their program such common-sense, but important, precautions as these:

1. Walk carefully, especially up and down stairs.

2. Refrain from lifting or moving heavy objects.

3. Avoid taking hot baths and be careful about getting in and out of the bathtub.

4. Avoid standing or moving when feeling faint or dizzy.

5. Ask for assistance when lighting or refueling stoves, furnaces, heaters, and fireplaces.

The successful application of safety techniques will prevent needless deaths, disability, and suffering among persons in every age group in our population. The greatest challenge is to develop a safety education program which will assure our country's oldest citizens accident-free days which can grow into accident-free years.

References

1. NATIONAL SAFETY COUNCIL, STATISTICS AND RESEARCH DIVISION, *Accident Facts.* Chicago, The Council, 1953.

2. BRITTEN, R. H., and OTHERS. The national health survey; some general findings as to disease, accidents, and impairments in urban areas. *Pub. Health Rep.* 55:444-470, March 15, 1940.

3. FOARD, F. T., and CAMERON, C. M. Accidents — childhood's greatest threat. *Tri-State Medical Journal.* 2:8, Oct. 1954.

4. U. S. PUBLIC HEALTH SERVICE, *Home Accident Prevention; a Guide for Health Workers.* (Public Health Service Publication No. 261) Washington, D. C., 1953.

LAW ON ABANDONED EXCAVATIONS

FROM GILBERT L. RHODES, chief, Home Safety Project, California Department of Public Health, Berkeley, Calif., we have received a copy of a portion of the State of California's Health and Safety Code relative to abandoned excavations.

He writes, ". . . We do know in certain local areas in the State that the Board of Supervisors has placed upon the health department the responsibility for enforcement of Chapter 4 and that sanitarians in these local health departments do order that open shafts, pits, wells, septic tanks, etc., be covered. . . ."

This regulation is intended to prevent drownings and injuries and death from falls.

State of California
Health and Safety Code
1949
Chapter 4. Abandoned Excavations

24400. Every person owning land in fee simple or in possession thereof under lease or contract of sale who knowingly permits the existence on the premises of any abandoned mining shaft, pit, well, septic tank, cesspool, or other abandoned excavation dangerous to persons legally on the premises, or to minors under the age of twelve years, who fails to cover or fence securely any such dangerous abandoned excavation and keep it so protected, is guilty of a misdemeanor. (Amended by Stats. 1949, Ch. 136. In effect May 5, 1949.)	**Covering or fencing: Private land**
24401. The board of supervisors may order securely covered or fenced abandoned mining excavations on unoccupied public lands in the county.	**Public land**
24402. The board of supervisors shall order securely fenced or covered any abandoned mining shaft, pit, or other excavation on unoccupied land in the county whenever it appears to them, by proof submitted, that the excavation is dangerous or unsafe to man or beast. The cost of covering or fencing is a county charge.	**Unoccupied land**
24403. Every person who maliciously removes or destroys any covering or fencing placed around any shaft, pit, or other excavation, as provided in this article, is guilty of a misdemeanor.	**Malicious removal**

Proofs and Mats

PROOFSHEETS FOR the Advertising Council's home safety campaign have been sent to newspapers throughout the country. These and mats are also available to editors of news bulletins, house organs, etc. If you are interested in obtaining proofs or mats, write to the Special Service Office, Advertising Council, 425 No. Michigan Avenue, Chicago 11, Ill.

Posters are available for use as window display. The distribution of these will depend on the Proprietary Association, 810 Eighteenth Street, NW, Washington 6, D. C.

NEW JERSEY Bulletin

Miss Edith R. Doane, director, Women's Division, New Jersey State Safety Council, Newark, N. J., issues a bulletin *Minute Safety Messages* as a service. The one shown below is on the prevention of falls.

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MINUTE SAFETY MESSAGES

FOR USE BY SAFETY AND PROGRAM CHAIRMEN AND OTHER GROUP LEADERS

(The following Messages and Slogan are program aids, suitable for reading at meetings, posting on a bulletin board, publicizing through printed bulletins and for use with leader-training groups. Reserve for undated and repeated use.)

IF YOU ARE WISE, YOU WILL NOT FALL FOR AN ACCIDENT

JANUARY

FALLS

Of all winter-time home accidents, falls in January are the most prevalent. Since weather forecasts point to a long and severe winter here, to the common causes of falls inside the home we will add ice and snow hazards. These can make walking difficult for young people and downright dangerous for those older people who dare to venture out. A good basic rule for every one's safety at this time of year, says the New Jersey State Safety Council, is to keep all porches and steps, driveways and walks around the house free of ice and snow. Store up a supply of rock salt or fill some cartons with sand, to be ready for spreading on slippery or hard-to-melt areas. Your lively youngster may be able to laugh off a harmless tumble into a snowdrift but, in a few seconds, an icy patch could send you or your less-agile mother or father into a hospital with a broken hip, from which it would take many hours to come back. Keep slip-safe and prevent falls.

Falls

The New Jersey State Safety Council reminds us that falls annually account for about two-thirds of all home accident deaths in this state and that in 1954 three-quarters of the people so killed were 65 years old and over. Some dangerous causes of fatal falls are over-waxed floors, loose scatter rugs, dark stairs and passageways and electric cords that trail in the paths of foot traffic. Falls can be disabling and painful to every one but, for elderly persons, they can too frequently be deadly. So, if there is a senior citizen in your home, use constant care to correct hazards and prevent falls.

FALLS

Usually when you slip or trip you fall fast, regardless of the cause, and can do little on the way down to lessen the injury. The best way to avoid the injury is not to give the fall a chance to happen. Do something immediately to correct the hazard that did cause the fall so it cannot happen again to any one. And while you are about it, keep your eyes alert to other hazards that, if not corrected now, might cause more falls tomorrow and prevent a family weekend outing or some other planned activity. The New Jersey State Safety Council reminds us that among these hazards are, using makeshift equipment to climb on, loose scatter rugs and cluttered stairways. It's smart to be safety-minded and you will always climb on a firm foundation, avoid over-balancing when reaching, use the handrails on stairs, keep steps clear and hallways well lighted, wipe up spilled liquids, anchor all rugs and never over-wax floors. Watch that it's safe where you put your feet or it may be some while before you're on them again!

For Additional Program Materials Contact:
Women's Division Director
NEW JERSEY STATE SAFETY COUNCIL

24 Branford Place	Mitchell 2-3123	Newark 2, N. J.
28 West State Street	EXport 4-9604	Trenton 8, N. J.

Ho 751 el

N.S.C. photo

Stairs are a fall hazard especially among the elderly.

Falls Among Elderly People

Living at Home

By Hugo Droller, M.D.

The following has been reprinted from *Geriatrics*, vol. 10, pp. 239-244, May 1955.

FOUR-FIFTHS OF all fatal home accidents in England occur in small children and in old people.[1] Three-fifths of such fatalities occur in old women. The death rate from falls rises rapidly after 65, until there are about three times as many deaths from falls in women as in men.[2] In 1949, 0.6 per cent of all the deaths of men over 65 were due to falls and 1.3 per cent of all deaths in women.

Information about the frequency of falls in an elderly population living in their homes was not available until Sheldon's investigation in Wolverhampton in 1948.[3] He noted the high incidence of falls among the elderly—40 per cent—and devoted a most interesting chapter of his book to a discussion of the mechanism of falls. However, the subjects of the Wolverhampton survey were not examined medically and Sheldon had to rely on carefully taken histories.

The following observations on incidence and effects of falls are based on a medical survey[4] of elderly people of Sheffield, living alone or with their consorts in their own homes.

The Survey—Subjects and Methods

In 1948 a social survey was carried out by the Sheffield Council of

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Social Service on a sample of all people of pensionable age in Sheffield.[5] The sample was selected by a procedure described by Greenlees and Adams and included one out of every 30 persons in the group. The medical survey was based on the original sample and included all those living alone or living with consort who could be traced and who were willing to have a medical examination. Of 672 possible subjects, 476 were fully examined.

The question of falls was discussed twice with each subject, first by the social worker on her preparatory visit, and again by the examining physician. Information was sought on falls, their frequency, their seriousness, and whether they required medical attendance and rest in bed. Were the falls due to environmental factors or to disability or both? Did the subject sustain a fracture, and at what age and at what site?

TABLE 2
CONDITIONS CONTRIBUTING TO FALLS

Conditions contributing to falls	*Men*	*Women*
Clinical conditions:		
Vertigo	28	56
Skeletal deformity and disease and arthritis of lower limbs	9	26
Old cerebrovascular lesions	3	7
Postural hypotension	5	10
Weakness	3	8
Sudden loss of muscle tone		4
Difficulty in righting		2
Legs giving way without ascertainable cause		1
Defective vision		4
Environmental conditions:		
Tripping	5	23
Living on steep hills		4
Unsuitable stairs		8
Loose rugs or defective floors		22

Causes of Falls

It was found that falls increase with age and that women fall at an earlier age than men. . . . Falls are caused by many external factors and pathologic conditions. They are frequently multiple and difficult to unravel.

Giddiness and dizziness are traditionally blamed for falls. It is, however, difficult to get from an inarticulate person an accurate description of what he means by giddiness or dizziness, which may be used to convey any unpleasant sensation above the diaphragm. One-half of the sample complained of a sensation of apparent movement, which we mean when we talk about vertigo; but only one-third of those complaining of vertigo had experienced falls.

Other common pathologic conditions are arthritis, cerebrovascular lesions, and weakness. There was a small group of persons who suffered from sudden loss of muscle tone and difficulty in righting themselves. One person complained that his legs gave way for no ascertainable reason.

Defective vision might be expected to account for many falls, but this was not so. Only 4 women had falls caused by bad vision; 3 had cataract and the fourth was almost completely blind from glaucoma.

Deafness is closely associated with labyrinthine failure and we saw 3 men and 15 women who were severely deaf who had had attacks of vertigo and had fallen frequently.

The "liability to fall" is always bound up with the "opportunity to fall." This leads us straight to the environmental factors (table 2). [Table 1 has been omitted here.]

Environment

The social survey of 1948 revealed that only a small proportion of the elderly in Sheffield live in dwellings specially designed for them. Sixty per cent of the sample lived in houses with outside sanitation; toilets were frequently at a distance from the house and had to be reached across unlit and unpaved passages. Seventy-two per cent lived in houses built before 1920—houses with narrow staircases, steps too high, lack of bannisters, poor illumination, old-fashioned kitchen ranges, and fireplaces with protruding corners. To this should be added defective household implements, old and decrepit furniture, unsuitable floor coverings, and gaps in the floor boards.

Conditions in Sheffield are made worse by the steep hills and the harsh winters. The seasonal incidence of falls was not investigated, but the case histories contain references to icy roads and other hazards caused by weather.

Sex Distribution

There was an excess of women who fell.

This is accounted for by there being more old women than men. The margin which cannot be so accounted for can be explained by the greater domestic activity of women and the prevalence of arthritic changes in the weight-bearing joints.

Living habits differ in elderly men and women, and this may have a bearing on the accident rate. Men reduce furniture to a minimum to do away with unnecessary dusting and cleaning, but women do not wish to be parted from their possessions and surround themselves with an extraordinary assortment of furnishings.

TABLE 3
PATTERN OF FALLS—PLACE

Situation	*Men (192)*		*Women (284)*		*Total (476)*	
	Number	*Per cent*	*Number*	*Per cent*	*Number*	*Per cent*
Street	7	3.6	16	5.6	23	4.8
Domestic	3	1.6	41	14.4	44	9.2
Total	10	5.2	57	20.0	67	14.0

Accidents

Of the sample group, 170 had sustained falls since retirement. Only major falls can be presumed to have been recorded. Falls were divided into two groups—those which happened in the street and those occur-

TABLE 4
PATTERN OF FALLS—SITUATION

Situation	*Number*
Street	
Injured by vehicle whilst crossing street	6
Falling getting off bus or tram	5
Falls on slippery road	8
Falls on slippery road and subsequent injury by passing motor vehicle	2
Domestic	
Falling down the stairs	17
Falling from chairs, stepladders, window ledges	10
Slipping on loose carpets	8
Tripping	4
Unknown	5

ring at home (table 3). In either case, certain patterns emerged.

Falls in the street were almost equally divided between the sexes; they were most frequent before age 70. After 70, the old person does not seem to venture so often across the streets.

An "accident" can be considered as any hazardous situation in which an individual fails to respond correctly. It is difficult to define it properly when pathologic conditions of a subject coincide with an environmental hazard. I have made no attempt to separate the two, but have listed in table 4 the situations in which the falls occurred.

Falls on slippery or icy roads are most common, followed by falls while crossing the street due to collisions with vehicles. Sometimes buses and trams do not stop long enough to allow an elderly person to get on or off, so that he is thrown off or dragged along. Two persons fell on roads and were injured by cars after they had fallen down.

Falling down the stairs is the most common among domestic accidents. This is most often caused by lack of equilibrium either from vertigo or from some defect in the stair leading to tripping. Falling from chairs, stepladders, and window ledges is almost always the result of some domestic activity such as putting in new light bulbs and cleaning windows.

Fractures

Of the sample group, 50 persons had sustained fractures since age 60. Case histories showed that the force required to break a bone was often quite trivial.

In a domestic survey such as this, we assume that we shall meet the fittest survivors of such shock-producing conditions as fractures of the long bones. This explains the small numbers of persons seen who sustained fractures after 70 (tables 5 and 6). This is quite in keeping with hospital statistics which show the rapid rise in mortality from falls and fractures after 75. The numbers we meet at home are the group who have survived.

The histories of the 10 subjects who sustained more than one fracture provide a fascinating commentary on the domestic circumstances, the frailty of bones, and the strength of mind of some of these elderly people. The following histories are typical:

Case 1. This 74-year-old man had widespread Paget's disease and severe vertigo. Since the age of 65, he had fractured the left femur, right scapula, left wrist and ankle on various occasions, always while in the home.

Case 2. This 70-year-old man fractured his elbow at 58 and his clavicle at 65, both in industrial accidents.

Case 3. This woman, aged 68, had fractured the left femur at 52 when she was "blown over by a gale;" at 59, she broke the other femur during a fall due to dizziness; and at 61, while rushing up the stairs, caught her foot in a carpet rod and broke the patella.

Case 4. This woman, aged 76, fractured her patella and had a comminuted fracture of the tibia at the age of 72. At the time of her accident, she was hanging up the laundry and as the chair on which she was standing was a bit wobbly she put an old brick under one leg of it!

General Health and Physical Findings

The physician assessed the subjects of the survey in three medical categories—fit, moderately fit, and unfit. Of those liable to falls, 41 per cent were unfit; of the whole sample, 27 per cent; and of those not liable to falls, only 18 per cent. It appears that the subjects who fell were as a group less fit than the rest (table 7).

It was also found that in all age groups those who fell were less fit than the others. In the women the differences were similar except in the oldest group, in which those liable to falls were as fit as the rest. The sample was too small to assess the significance of this last finding.

There was no clearcut correlation of vertigo with falls. Although the number of persons suffering from vertigo was large, only 35 per cent were liable to falls. The incidence of fractures in women who complained of continuous vertigo was the same as in women who had fractures but did not complain of vertigo.

We had previously shown that excessive height of systolic and diastolic blood pressure is not related to vertigo or falls.[6] On the other hand, a small group of persons of the survey showed a fall in blood pressure on assuming the upright position after fifteen to twenty minutes' rest.[7]

These people were much disabled by the hypotensive condition which made them lose balance immediately on rising from a chair or when stooping. One man and two women within this group suffered from aortic incompetence. They were the only persons with cardiac conditions associated with falls in this survey.

Examination of the central nervous system showed no constant correlation between falls and incidence of hemiplegia, parkinsonism, and absent vibration sense. On the other hand, an extensor plantar response was four times more frequent in those men who fell than in the rest; and in women it was almost twice as frequent. This tendency to a disturbance of the corticospinal pathway was also seen in a group of 468 consecutive patients who were ambulant and awaiting return to their homes from the long-stay annex. This group, which was used as a

TABLE 5
FRACTURES

	Men			Women			Combined		
Age	*Number at risk*	*Fractures*	*Per cent*	*Number at risk*	*Fractures*	*Per cent*	*Number at risk*	*Fractures*	*Per cent*
60-69	39	10	25	149	30	20	188	40	21.2
70	153	4	2.6	135	6	4.4	288	10	3.4
All	192	14	7.3	284	36	12.6	476	50	10.5

control, was more frail generally and somewhat older.

It is difficult to assess the role of minor cerebrovascular attacks in the causation of falls. Minor cerebral accidents are often associated with falls, vertigo and temporary incontinence,[8 9] as shown in the following history:

TABLE 6
SITE OF FRACTURES

	Men		Women	
Site of Fracture	Number	Per cent	Number	Per cent
Arm, elbow, wrist	2	4	16	32
Ribs, scapula, clavicle	4	8	6	12
Leg, ankle	2	4	7	14
Femur	1	2	2	4
Hand	1	2	2	4
Patella			2	4
Foot	2	4	1	2
Pelvis			1	2
Skull	1	2		

Case 5. This man, aged 73, was a former bricklayer. At 67, he fell 15 feet from a scaffold, but did not lose consciousness and had no concussion. When he tried to get up, he found that he had a complete right hemiplegia. When examined, he still had residual signs.

Similar observations were made on the long-stay annex control group, in which 14 cases of minor cerebrovascular attacks with pyramidal signs and tendency to falls were discovered.

Discussion

The literature on falls of the elderly is not extensive. The Registrar General's returns gave information on the mortality from falls. Sheldon in his Wolverhampton survey drew attention to the frequency of falls.[3] Seiler and Ramsay discussed falls in the context of home accidents requiring hospital treatment and stressed the importance of environmental factors.[10] Scott discussed falls of the elderly, stressing the general diminution of all forms of sensation and adverse home conditions.[11]

The findings of the Sheffield survey coincide closely with those of Wolverhampton regarding the tendency to falls. There were many more fractures in the Sheffield survey, but this may have been due to the hilly nature and the inclement winters of Sheffield.

There seems little doubt that involutionary changes in the central nervous system are ultimately responsible for the loss of balance and falls. The extensor response which was found with increased frequency among those liable to falls is evidence of involutionary change of the nervous system.

Whitfield showed that results of perceptual and cognitive tests were average or above average in elderly miners of 53 to 66, but that they had poor motor control and coordination.[12] If we accept Whitfield's definition of an accident as "failure to make an adequate response to a hazardous situation" we can see the elderly person coming to grief, either because he cannot control his motor apparatus with sufficient speed to save himself, or because he is no longer capable of deciding whether there is a hazard and, if so, what action to take.

This raises interesting points of training. Whitfield's elderly miners were good or average in their perception but had poor motor control. However, they would behave more circumspectly than the younger persons, and thereby prevent accidents from happening.

Jokl,[13] while studying a group of 1,704 elderly active gymnasts from 60 to 82 years in age, demonstrated statistically that the trained elderly person has better control of his motor apparatus and kinesthetic mechanism than the untrained, or even the untrained younger person. He concluded that constant muscular training throughout life has an excellent inhibitory effect on all manifestations of aging.

TABLE 7
GENERAL HEALTH BY PHYSICIAN'S ASSESSMENT

	Fit	Moderately fit	Unfit
Whole sample	111	222	124
Liable to falls	22	78	70
The rest	89	144	54

The findings of Whitfield and Jokl appear to be an important corollary to the clinical evidence of pyramidal tract damage in an elderly population subject to falls. Whether falls, like other manifestations of aging, can be prevented by gymnastic training, as Jokl indicates, we do not know. Whitfield's miners appear to have been physically fit but still accident prone and with poor motor coordination, whereas Jokl's gymnasts had superb motor coordination.

Prevention

Among the clinical impressions of the survey is the picture of the old men and women who had remained physically and mentally active and had not experienced any falls and a much larger group of persons who had deteriorated physically and had experienced many falls.

Among the small number of still active sportsmen of the survey, was a man of 76 who had played at least one round of golf daily for the last thirty years. He had the strongest handgrip, was in perfect health, and was mentally superior to most of his contemporaries. He had never experienced a fall.

Much of the infirmity resulting from falls in the old may be avoided by prevention of accidents to the elderly, through control of their environment by education and perhaps by physical training continuing through life.

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REFERENCES

1. BOUCHER, C. A.: Medical officer of health and accidents in the home. Monthly Bull. Min. Health 11: 2-7, 1952.

2. Registrar General's Annual Report. H.M. S.O., 1951.

3. SHELDON, J. E.: The Social Medicine of Old Age. London, 1948.

4. HOBSON, W., PEMBERTON, J., BRANSBY, J., and DROLLER, H.: Medical survey of elderly people. To be published.

5. GREENLEES, A., and ADAMS, J.: Old People in Sheffield. Sheffield, 1950.

6. DROLLER, H., PEMBERTON, J., ROSEMAN, C., and GROUT, J.: Cardiovascular disease in a random sample of elderly people. Brit. M. J. 2:968. 1952.

7. DROLLER, H., and PEMBERTON, J.: Vertigo in a random sample of elderly people living in their homes. J. Laryng, & Otol. 67:689, 1953.

8. ALVAREZ, W. C.: Cerebral arteriosclerosis with small, commonly unrecognized apoplexies. Geriatrics 1: 189-216, 1946.

9. ALVAREZ, W. C.: Small, commonly unrecognized strokes. Postgrad. Med. 4:96-101, 1948.

10. SEILER, H. E., and RAMSAY, C. B.: Home accidents. Practitioner. 172:628-637. 1954.

11. SCOTT, R.: Accidents to old people. Practitioner 172:642-649, 1954.

12. WHITFIELD, J. W.: Individual differences in accident susceptibility among coal miners. Brit. J. Indust. Med. 11:126-140. 1954.

13. JOKL, E.: Alter und Leistung. Berlin, 1954.

AGE, FITNESS,

By Barry G. King

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THIS REPORT IS concerned with a discussion of a basic approach to the study of the causes and the methods of prevention of accidents and some preliminary information on forces which will throw man off balance.*

There are a number of reasons why the Civil Aeronautics Administration should have an interest in these investigations. We are intimately concerned with accident dynamics and with the human factors in accidents.

Further, we have specific interest in factors contributing to disorientation of body posture. This includes the problem of falls which is so important in home safety.

In aviation safety it encompasses a considerably broader field. Since a stable platform of operation is essential for safety, we must define this stable platform for pilots, aircrewmen, and passengers.

We are concerned with flight emergencies such as turbulence in flight and rapid deceleration in crash landings and water ditching.

We are also concerned with emergency evacuation of aircraft following landings where passengers must descend rapidly from the cabin to the ground. In this situation falls and injury to one passenger may jeopardize the safety of remaining passengers.

Let us first consider a general method of approach to research studies on accidents.

Accidents result from the interaction of three principal components —*man, stress* and the *environment.* The extent to which each of the three factors contribute may vary greatly. In combination, the critical value is reached.

The score which describes the man's limitations, and his capabilities, determines the extent of his contribution to the accident; the contribution of the stress is determined by its energy; the favorable and unfavorable aspects of the conditions under which man operates at the time represent the contribution of the environment.

Extreme limits of the value for the stress can be measured in terms of exposure, that is, the energy or or strength of the stress and the time during which it acts.

At some point there will be a value for exposure which cannot be tolerated by any man.

When this limiting value is reached an accident will result regardless of the values of the other components of the equation.

We can apply this knowledge for the prevention of accidents either by controlling or limiting the exposure to which man can be subjected or by providing special protective equipment.

For example, an electric current of about one quarter of an ampere acting for three seconds or less will result in death when the heart is included in the pathway of the current through the body. Wherever such exposures are likely, we can institute protective measures such as insulation, use of rubber gloves, or grounding.

At the other end of the range there is some value for exposure which can be tolerated without harm by all men. Knowledge of this value, which in our example would be something less than ten milliamperes, serves as a basis for determining the degree of protection required to provide complete safety.

As a separate study, we may investigate the range of the environmental conditions under which man can exercise his capabilities. For example, he can see and avoid obstacles within a certain range of illumination. Where safety depends upon vision, accidents will result if these limits are exceeded.

The role of the man is certainly the most difficult problem in solution of the accident equation. We know that within a range of values for stress, and for environment, an accident may, or may not, occur depending upon man's contribution to the interaction. Further, we know that the human capabilities and limitations, which for the sake of simplicity in our initial approach we have considered as a single component, represent a highly complex factor made up of a multitude of physiological, psychological, and sociological subcomponents. We will find it advantageous to set up a second equation to solve for the value of the human factor. There again we start with broad general categories of components which must be broken down and studied as separate experimental variables.

Whether or not an accident results from a potentially stressful situation is determined by:

1. Man's ability to perceive the situation. This in turn will depend upon the strength of stimulus (i.e., the warning) and the threshold of perception.

2. His ability to organize and interpret the incoming sensory data

*The above is a talk presented October 21, 1952 at the 40th National Safety Congress and Exposition. The talk has been published in *Transactions 1952, Current Topics in Home Safety,* vol. 13, pp. 28-31, published by the National Safety Council.

EXPERIENCE, AND SAFETY

and determine and initiate appropriate action.

3. The effectiveness of his motor activity in avoiding the stress he has recognized. This depends upon the strength, speed, and coordination of muscular movement.

4. The ability to sustain stress, if escape is not effective.

If the accident is to be prevented, sense organs must function adequately to register and signal the visual, auditory, olfactory warning of the stress at a distance or the tactile, thermal, or pain sensation which arises as the separation from the stress is reduced.

The stimuli must reach the receptor at a sufficient intensity level for excitation of the sense organ.

The organization of the information must be sufficiently rapid. The speed and strength of the effector action must result in avoiding all or some portion of the stress.

The fourth quality becomes important if the sensory, interpretive, and effector responses are insufficient to prevent exposure to the stress. Man's tolerance to the stress will determine the possibility of further action for avoiding injury or for self-preservation and the final effect of the stress on man, whether the exposure is ended through escape or termination of the action of the agent.

There are marked differences in the extent to which these capabilities are developed in the extremes of the age groups, i.e., in the very young and in those of 65 years and over. Accident rates are high in these two groups. Intensive study of the young and the old affords a promising approach to the study of man's contribution in determining an accident.

The extremes of age exhibit somewhat comparable qualities insofar as sensory and motor abilities are concerned. They are both at a physical disadvantage in effector action, one, because the speed and strength of action has not yet developed, the other, because these have been reduced by deterioration. Both are further handicapped by their receptor function.

Those in the older age group, because of receptor changes, are not only less likely to be subject to the warning stimulus, but in addition may react only to a more intense stimulus.

Those in the younger age group range, after a certain age, have sensitive, effective receptors.

The major difference between the two groups is, however, the experience—the ability and perhaps the judgment—to use previously acquired sense data to anticipate future data and to plan action ahead.

Insofar as tolerance to stress is concerned—both groups are less resistant to most stresses than intermediate age groups. Accidents are the fifth cause of death in infants and in the older age group.

Let us consider the factors of abilities and of tolerance to injury in relation to falls. Falls result from the inability to cope with gravitational or other forces. They may occur during standing when a subject is being acted upon by gravity; if a man is moving, he is subject to a succession of resultants of more or less horizontal accelerations and decelerations and of gravity. The "agent" which may cause the stress to be increased to a critical level may be a loose board or a hard, slippery surface.

If the accident is to be avoided in the simplest case, that of standing, the sensory nerve endings in the muscles, joints, and skin and those in the inner ear and the eye must react so that the combined response supplies at least adequate sensation for a man to determine the position of his body in relation to space. The sensory impulses must be interpreted, and appropriate action in terms of muscular contractions must be carried out. Let us consider these factors in greater detail.

I. Factors influencing a fall in the older age group would be:

A. Deterioration in the sensory receptor organs. The stimulus must be greater in terms of intensity and duration of application to excite sensation.

B. It may be assumed, however, that since man is thoroughly used to receiving this type of information, he will have no difficulty in integrating and interpreting it if sense organs pass along the nerve impulses to the brain.

C. The process of sensory-motor integration and integration of motor or effector action may be expected to be adversely influenced by age. The more extreme example might be the deterioration in the Purkinji cells in the cerebellum.

D. The effectiveness of the motor response, once integrated, will be determined by the speed and strength of the muscular action. Standing involves only a very small amount of work. The situation is comparable to balancing a very heavy bar with one end resting on the ground. The muscle need only fix the joints, not support the body weight. It is necessary, however, that the

joints be fixed. This will usually present no problem unless some circulatory disturbance, e.g., syncope, interferes with the continuous barrage of impulses from the central nervous system to the muscles. Such an event would, of course, affect consciousness and mechanisms described in "C."

E. Experience, especially in a familiar situation, may result in appropriate action reducing the likelihood of a fall.

For example, sensations from the feet and limbs might not be sufficient to provide information on body posture. An elderly man may turn on a light if he anticipates standing so additional information about posture can be received through the eyes. He may reduce the continuous adjustment of the muscles across the joints by moving his feet further apart and increasing his base of support.

II. If the end result of the factors mentioned in "I" is that the man falls, whether or not it results in an accident depends upon his tolerance to mechanical impact—upon the strength or frailty of his bones and tissues.

Preliminary Report of Experimental Findings

Mr. John Swearingen, of the CAA's Civil Aviation Medical Research Laboratories, has carried out preliminary studies on the effectiveness of motor response in maintaining balance when healthy men in the younger and middle age groups are exposed to suddenly applied forces resulting from an air blast. This is, in effect, a measure of man's tolerance to disorienting forces.

Swearingen measured the forces acting on the human body during equalization of pressure differences following puncture of a plastic membrane separating a partially evacuated low pressure chamber and a "collar" or "wind tunnel" which was at sea level pressure.

The air blasts were of short duration, i.e., about one tenth second; pressure differences up to six and one-half pounds per square inch were used; the air velocities in the tunnel reached around 125 miles per hour during the brief period of equalization of the pressures.

Human subjects assumed upright or other positions in the rectangular "wind tunnel" with the body oriented in various directions in relation to the wind.

A number of body positions were tested to measure the forces which would act upon the body when rigidly supported on specially designed stands or during equalization of various pressure differences. After these values for a single subject were established, a series of trials were made in which the subject assumed the same positions without support; he was secured only by a safety belt and cable to limit his body movement and minimize the danger of body injury.

Pressure differences were increased in successive trials until the subject was unable to maintain his balance or to recover. Under these conditions where the force acts over the whole area of the body presented to the blast, a force of 59 pounds was sufficient to disturb the balance of the body (balance could be recovered), and 125 pounds disoriented the subject beyond recovery where he stood face to blast. Disorienting forces were somewhat higher when standing back to blast (69 pounds and 170 pounds). Disorienting forces acting with the subject in a seated position ranged from 63 to 71 pounds (recovery possible) to 75 to 91 pounds which disturbed posture beyond recovery. Other tests were made while the subject was walking at various stages of movement and foot and leg positions; it was found that air blast forces of approximately 75 pounds would cause the subject to fall.

We believe that accumulation of data on the effects of both short blasts and "steady state" or longer blast measurements will enable us to define the tolerance of normal, healthy men in intermediate age groups to disorienting forces. Since tolerances of the younger and older groups are not likely to be greater, these data will have application in reducing accidental falls in domestic and industrial situations as well as serving the needs of aviation safety. We hope that comparable studies of men of all age groups will be undertaken by other investigators using other experimental methods to test and to expand our findings.

More Than One Hazard Involved In Fall

THE FOLLOWING letter describes how one accidental fall occurred in which more than one hazard was involved.

YORK, PA.
May 31, 1956

Gentlemen:

The following incident is true and I thought perhaps you might find use for it in one of your monthly safety magazines.

Recently a boy was busy scanning the newspapers for items to be used in connection with merit badge work in Scouting. He had the newspapers spread out on the living room floor when he called to his mother for her approval concerning one of the items. At the time, the mother was busy on the second floor but stopped the work to go to the first floor. However, her descent was made in less time than she had anticipated. She was in stocking feet—had forgotten that a cleaner wax had been used on the steps (not for beauty purposes) but to remove black heel marks. Before she knew it, she had fallen down the entire flight of stairs. Luckily when the mother picked herself up, with the aid of husband and son, no bones were broken—just shaken up from the fall.

This incident might be used as a lesson-story for National Safety Week* when that week is observed. Every week should be National Safety Week.

What were the items the boy was seeking?

Write-ups on accidents that could be prevented in the home, office, or on the road—accidents caused through carelessness and thoughtlessness.

Very truly yours,

(Signed) MRS. ARTHUR B. OWEN

The above incident is true because I was the victim of the fall.

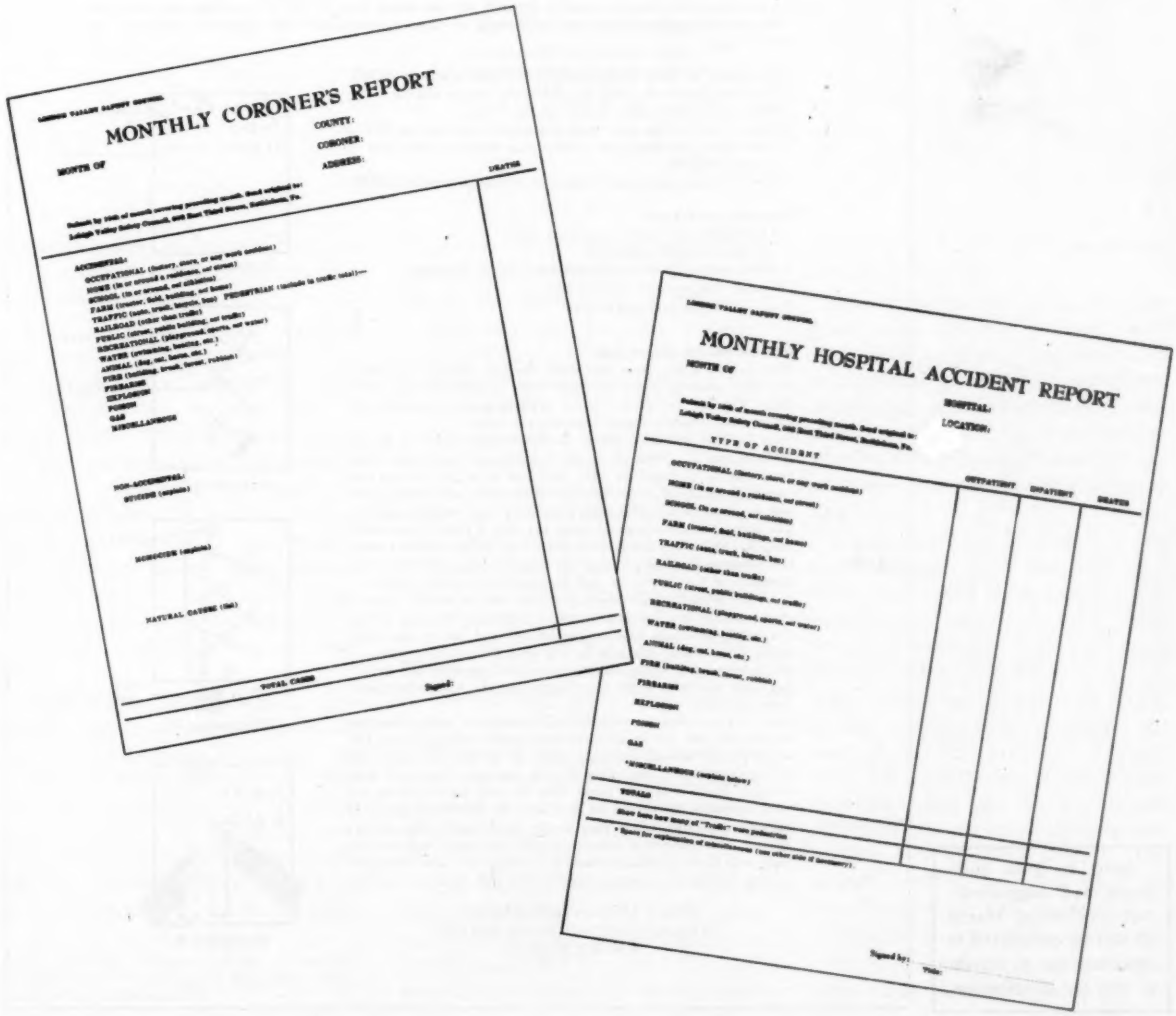
(Signed) MRS. ARTHUR B. OWEN

*The National Safety Council sponsors National Farm Safety Week which will be July 21-27 in 1957.

To Obtain

ACCIDENT STATISTICS

HAROLD A. SEWARD, secretary-treasurer, Lehigh Valley Safety Council, Bethlehem, Pa., states that they have developed the forms below to help them secure statistics on various types of accidents in an effort to secure information on accidents that they could not obtain by other means. Thus they get the ratio of accidents in the various fields such as home, occupational, traffic, etc. The forms are intended for distribution to local hospitals and county coroners to obtain a monthly report from them on a voluntary basis.



MONTHLY CORONER'S REPORT

COUNTY:
CORONER:
ADDRESS:
MONTH OF
DEATHS

ACCIDENTS:
OCCUPATIONAL (factory, store, or any work section)
HOME (In or around a residence, not street)
SCHOOL (In or around, not streets)
FARM (tractor, field, buildings, not home)
TRAFFIC (auto, truck, bicycle, bus) PEDESTRIAN (include in traffic total)—
RAILROAD (other than traffic)
PUBLIC (street, public buildings, not traffic)
RECREATIONAL (playground, sports, not water)
WATER (swimming, boating, etc.)
ANIMAL (dog, cat, horse, etc.)
FIRE (building, brush, forest, rubbish)
FIREARMS
EXPLOSIVES
POISON
GAS
MISCELLANEOUS

NON-ACCIDENTAL:
SUICIDE (explain)

HOMICIDE (explain)

NATURAL CAUSES (list)

TOTAL CASES
Signed:

MONTHLY HOSPITAL ACCIDENT REPORT

MONTH OF
HOSPITAL:
LOCATION:

TYPE OF ACCIDENT
OUTPATIENT
INPATIENT
DEATHS

OCCUPATIONAL (factory, store, or any work section)
HOME (In or around a residence, not street)
SCHOOL (In or around, not streets)
FARM (tractor, field, buildings, not home)
TRAFFIC (auto, truck, bicycle, bus)
RAILROAD (other than traffic)
PUBLIC (street, public buildings, not traffic)
RECREATIONAL (playground, sports, not water)
WATER (swimming, boating, etc.)
ANIMAL (dog, cat, horse, etc.)
FIRE (building, brush, forest, rubbish)
FIREARMS
EXPLOSIVES
POISON
GAS
*MISCELLANEOUS (explain below)
TOTALS

Signed by:
Title:

ACTIVITIES SHEET NO. 10

ELECTRIC QUIZ BOARD

SHOWN HERE IS a suggested activity published by the Health Education Services, Kansas State Board of Health, Topeka, Kans.

Not rec'd.

SUGGESTED HOME SAFETY ACTIVITY FOR ORGANIZATIONS

THE ELECTRIC QUIZ BOARD

This interesting device can be made simply and economically according to the instructions below. It can be used to present a safety program for your group or as an exhibit at a fair or a carnival. The questions and answers can be changed as often as you desire. Six suggested questions and answers are:

1) Matches plus baby minus mother on telephone equals BURN
2) Electric socket plus hair pin plus baby equals SHOCK
3) Stairs plus skates plus father equals FALL
4) Stove plus boiling water plus unattended baby equals SCALD
5) Stepladder plus medicine cabinet plus unsupervised child equals POISON
6) Bathtub plus baby minus mother on telephone equals DROWN

Materials needed are:
20 feet light, one strand insulated wire
1 six volt dry-cell battery
1 sheet poster board or plywood about 24 by 36 inches
16 large size, copper, paper brads
1 six volt light bulb and socket

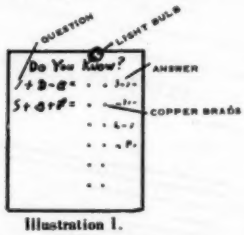


Illustration 1.

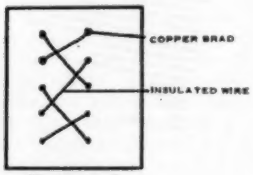


Illustration 2.

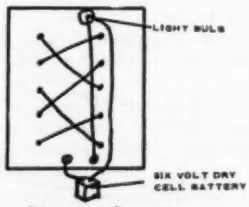


Illustration 3.

Instructions for assembling:

Step 1. Place the questions down the left side of the board and the answers down the right side (**Illustration 1**). Drill holes through the poster board opposite each question and answer and insert a copper brad in each hole.

Step 2. The board is wired on the reverse side as shown (**Illustration 2**). Remove about 2 inches of insulation from each end of a length of wire, one end is wound around the extended prongs of a brad next to the question and the opposite end is connected to the brad adjacent to the correct answer. The prongs are then spread apart, insuring a tight connection.

Step 3. The battery and light or buzzer are connected in series (**Illustration 3**). This is done by connecting a wire from one terminal of the battery to one terminal of the light socket — it makes no difference which terminals are selected. Then a three or four foot piece of wire is connected to each of the remaining terminals (one on the battery and one on the light bulb). The wiring can now be checked by removing some of the insulation from the two loose ends of the wire and touching them together. If the bulb lights up, the wiring has been done correctly.

Step 4. Two holes are now drilled through the poster near the bottom and the two loose wires are pushed through them. The wires should be long enough so that one of them will reach all the questions and the other all the answers. Now face your electric board with one loose wire in each hand and try out your creation. If you touch one wire to the board beside a question and the other wire to the brad beside the correct answer, the electrical circuit should be completed and the light will flash on (**Illustration 4**). A buzzer or other attention-getting device may be substituted for the light bulb and socket.

Illustration 4.

HEALTH EDUCATION SERVICES
KANSAS STATE BOARD OF HEALTH
TOPEKA, KANSAS

Send us your comments and suggestions. Any received by March 15 will be considered in revisions for a reprint of this for distribution.

Development and Distribution of *Home Safety Manual*

By Warren Taylor
Safety and Health Department
United States Junior Chamber of Commerce
Tulsa, Okla.
Manager

How do you convince 180,000 Jaycees that safety in the home is important?*

Do you bore them to death with a lot of dismal figures, do you harangue them with directives and orders, or do you try to appeal to them as responsible fathers and citizens of their communities? Maybe you arrange for national contests with appropriate prizes for home safety projects, maybe you forget the problem and turn your back on it.

This is a hard question, and I'm sure that not too many people know the successful key to inspire our Jaycee membership to turn out en masse to help reduce home accidents.

The complex variety of interests that our 180,000 Jaycees have presents a problem of educating them quickly and easily to the general field of home safety. This became the objective of the U. S. Jaycee safety committee when it began its home safety program several years ago.

Home safety is a relatively new field for the Jaycees as a coordinated national program. Our safety department is very new; only five years old. Its first interest was in traffic safety and most of the Jaycee program energy was devoted to traffic safety exclusively. About three years ago, a desire to broaden the program base was felt, and investigation into home safety began.

Early in the investigation it became apparent that a lot of printed material, some free, some with a slight cost, was available from industry, safety associations, the government, and from educational medias. This unlimited supply of program guides and materials couldn't be duplicated by the Jaycees, and it was agreed that it would be unwise to forego the opportunity to use it.

However, the Jaycees couldn't very well try to stock the ever expanding flow of safety material that was available.

It was decided that a handy index referring to the home safety material would be the solution. We began collecting the material over a year's time and sorted all that could be adaptable for Jaycee chapter projects. This was a beginning, but we were not ready to establish a program. An index is a pretty dry affair, and there were some elements of interest that we were not covering.

This time our search turned to a good active program that was strictly Jaycee in nature and that was adaptable in chapters with memberships from 25 to 1,000.

The safety department was already conducting a doll traffic safety program that had grown steadily in participation for 4 years. The doll program consisted of cut-out dolls that had been injured, which children in the first and second grades would color and then cut out and mount. With each cut-out doll a short verse would describe some mistake the doll had made while playing near the street or walking across a street. The dolls were given to teachers in the elementary schools who would work them into their class time and who would emphasize the safety messages.

During the fourth year of this program, some 200,000 doll sets, with eight dolls to a set, had been used in a 2-month period. The popularity of this type of safety program in our chapters was evident and the acceptance by the elementary school teachers made us aware that this program had merit.

We adopted the idea of doll sets to stress home safety and planned a series that would show positive, but simple, home safety practices. This new series we called *Safe Living . . . Home and Fire Doll Sets.*

The home safety doll sets struck at the young, impressionable age level of the first and second grade level. Through the aid of the teacher the child would take home a colored picture of a home safety practice and proudly show it to his parents. The parents couldn't help but read the safety message and automatically check their own home for safeguards.

We now had the framework of a good home safety program, but we

*The above is a speech presented at the 44th National Safety Congress and Exposition, October 24, 1956, in Chicago, Ill.

were still lacking something. The index idea would give each chapter a source of good home safety material. The doll sets would give them an active program to push. But we still hadn't planned an all 'round program that would help the chapters use the materials in the index.

You have to sell the chapters on the need for home safety education,

Manual published by the Jaycees.

and you must make it applicable to their hometown situation. You must help them find an audience for their home safety message.

If the index could be pointed toward the adult level and stress home safety to them through modern educational mediums, then the Jaycees would be confident that their home safety program was a well rounded program that would be effective.

The index idea gave way to a manual that would easily and simply state the case for home safety: (1) instruct how to determine the safety needs of the chapter's community, (2) point out the various organizations that would help in this home safety program, and (3) then suggest program ideas that might best help educate the citizenry to the need for added safety precautions in the home situation.

With these suggested materials as a program base, the 1955 Jaycee National Board of Directors authorized us to prepare the materials and to emphasize home safety as a number one Jaycee program. With the financial cosponsorship of the Travelers Insurance Company, funds were given to push this program to the limit.

The results were the *Home Safety Manual* and the *Safe Living . . . Home and Fire Doll Sets.*

The *Manual* is designed to give year 'round program guides to the Jaycee safety chairman. Inside is a section explaining why home safety is important. Another section points out how this *Manual* can help the chairman do a good home safety job. Then the best way to use the book is suggested. The *Manual* lists all materials under three general headings, "Safety in the Home," "Home Fire Prevention," and "Gun Safety in the Home."

Each item is described briefly with its price and order address. The Jaycee chairman is urged to send for sample copies of any of the material and to ask for any new material that might be available. He is also advised to identify his reason for the request and thus solicit additional program aids. The *Manual* should open a wealth of sources that before were unknown to the average Jaycee safety chairman.

Film guides are listed. The Jaycee chairman can prepare a complete home safety program using the information found here. Hand-cuts and films can be part of the program which the Jaycee chairman would present before civic, fraternal, and educational groups in his community.

Nationally sponsored contests which might help spur a chapter to bigger deeds are also included.

At the lower right hand side of our doll set is space for the youngster to letter his name. Inside are eight simple pictures depicting different home hazards. With each is a little poem that the teacher can read aloud to the class, before the children start coloring them, and later the parents can read when their child brings home his newly colored picture. Thus the child is educated, and through him his parents are educated.

This program is worked through the cooperation of the primary school system. A Jaycee first calls on the principal and enlists his aid in presenting this program to the school's faculty. We have found that first and second grade school teachers have responded favorably to this type of teaching aid. The teacher finds that she can emphasize safety through her regular teaching aids. The doll sets provide an effective adjunct to her lessons. The program can be stretched over a period of 1 to 4 weeks.

This is what the child will see. Susan is walking down a stairway with her hands on an incomplete handrail. The verse reads:

"When climbing up and down stairs
Remember to do it with care
Help Susan by drawing a handrail
So she may stop safely, without fail."

The child is then aware that he is to complete drawing the handrail and then color the picture as he sees fit. This is in no way an art lesson. Instead, it is an attempt to entertainingly present a safety problem to the child in such a way that he will enjoy it and remember it.

Another situation goes like this:

"A safe fire should always have
two as a guard
When leaves, and trash are being
burned in the yard
Give Jerry a hose, in case they
need water
And put a rake in the hands of
his father."

Or this:

"A hand-rail and bath-mat are the
safest for you
When getting out of a bath tub,
says Sue
Draw in the hand-rail and bath-
mat as shown
So you will remember when you
are at home."

This simple program has been highly successful. Last year we printed only 150,000 of these and were out in six weeks. To discourage overordering, we charge two cents for each set over 200. Sometimes we get checks up to $128. We know that when Jaycees send in

not needed.

Folder containing pictures to color published by the U. S. Junior Chamber of Commerce.

money up to these amounts they are really implementing this program and not just playing around.

This is our home safety program. We believe that it presents the problem of home safety to our Jaycee chapters. We hope they will be able to effectively plan programs that will spread the awareness of unsafe practices in the home area and make people want to do something about them.

Our two avenues of approach, through the young child and through the adult, can be effective. The continual turnover of chairmanships every year will bring in a new man in each chapter who will find something different in this material to help him reillustrate the importance of home safety to his community.

To insure continued interest in this field of public safety, we at national headquarters will continue to advertize this program, recommend its listing as a Class I emphasis program, and advertise it through our internal mailings.

Material of this type is distributed on a request basis only. Every chapter that writes to national for help on a public safety program is given the *Manual*. Each January the doll sets are advertised and programmed to be a part of the elementary school teacher's instruction during the spring school months.

The American Jaycee knows that he is responsible for the world in which he wants his children to grow in. This is why he is so active in varied fields of civic enterprise. Certainly 80 percent of our members are veterans, almost 75 percent have children, are buying their homes, and have the native ability to be leaders in their communities.

This potential is magnified by the record of our past actions. The manpower of almost 200,000 young men in more than 3,100 communities represents a terrific force for safety.

Let's hope that this program will provide a Jaycee avenue that is distinctly their own, that will, if nothing else, teach them to teach their children the value of a safe home. If only this is accomplished, the Jaycees will be satisfied that their home safety program has been effective.

I have sample copies of both the *Home Safety Manual* and the home safety doll sets if you wish to have them.

Thank you.

FACTS ABOUT HOME FALLS

Home Accident Fatalities: 1952-1953

PRELIMINARY TABULATIONS of a followup study on home accident fatalities conducted in cooperation with 16 State Offices of Vital Statistics have been compiled by the National Safety Council utilizing a special questionnaire developed by the Public Health Service. While the figures cannot be interpreted as a probability sample because the participating States are not representative of the country as a whole and because completeness of reporting and followup were not systematic throughout, some interesting information has been accumulated.

Of a total of 8,969 fatal home accidents, 4,410 were attributed to falls. Table 1 represents a breakdown of these fall deaths by age group, sex, and by differentiation between falls from higher levels and falls on the same level.

People were killed by falls in every room in the house, including the closet! The largest number of fatal falls happened in the bedroom (1,266), including both falls from a higher level and falls on the same level. In addition to bedroom falls, in the order of their importance falls occurred in the living room (419), kitchen (413), yard (303), bathroom (202), porch (197), hall (165), dining room (139), basement (14), and closet (1). Eleven fatal falls were not classified above as they occurred in one-room apartments.

One thousand five hundred and sixty-two people fell while walking on the level, 526 while walking on stairs, 135 while doing housework, 133 while sleeping or lying down, and 43 while doing outdoor maintenance work (such as painting, washing windows, etc.). A total of 711 falls occurred during the act of rising or sitting, 148 while sitting, and 204 while standing.

Only 1,993 fatal falls, or about 45 percent, occurred to people who were not handicapped in some way. Feebleness or unsteadiness contributed to 965 deaths from falls, of which 786 were falls on the same level. Other contributory handicaps were heart, circulatory, or vascular disease, 331; lameness, 234; other chronic disease, 229; paralysis, cerebral palsy, 214; poor eyesight, 127; blindness in one or both eyes, 128.

Met. Life Ins. Co. Statistics

Metropolitan Life Insurance Company occasionally publishes statistics about home accidents as compiled from death claims submitted from their approximately 18 million Industrial policyholders, ages 1-74 years. About three-fifths are females, and about one-eighth are colored persons. For the most part policyholders are members of wage-earning families in the middle and lower income brackets residing in urban areas of the United States and Canada. Detailed information about these accidents is obtained from the papers submitted with the death claim such as the death certificate, physician's statement, coroner's inquest report, hospital report, and newspaper items. Often the information is collected by an investigator.

Of a total of 2,198 home accident deaths in a 2-year period (1953-1954), 1,060 deaths were attributed to falls, or about 50 percent. Of these fall deaths, 38 percent occurred while walking on stairs and steps, 21 percent while walking about or standing on the floor, and the remainder from porches, beds, windows, ladders, and other specified and unspecified agencies.

Metropolitan feels that the high incidence of falls on stairs and steps may be due to the frequency of this type of accident to older persons and that older people account to an even greater degree for the number of falls while walking or standing on the level. This is attributed to the large amount of time older folks spend at home, their increased susceptibility to falls because of various physical impairments, and to the fact that the injuries resulting from falls are more serious in the elderly.

Kansas Blue Shield Data

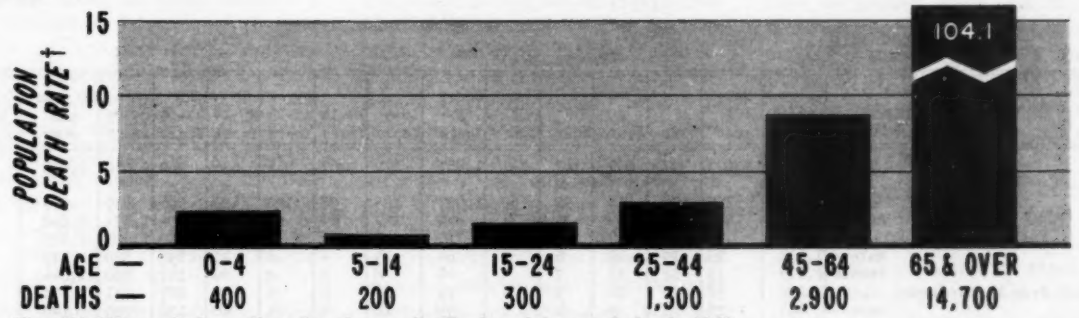
The Home Safety Program of the Kansas State Board of Health inaugurated a method of gathering statistical data regarding nonfatal home accidents utilizing the medical claims made to the Kansas Blue Shield. A questionnaire requesting the insured for information about the accident for which a claim had been made to Blue Shield was mailed to the insured with the claim payment notice. This questionnaire was returned to the Kansas State Board of Health for compilation of statistical information. Blue Shield was chosen as the means for gathering additional information because (1) all but two counties in Kansas have enrolled memberships in Blue Shield, and (2) the Blue Shield—as opposed to Kansas Blue Cross—was coded in such a fashion as to make separation of claims for accidental injuries relatively simple to separate from other medical claims.

A total of 17,202 questionnaires were sent out of which 5,418 were returned. Of these accidental injuries, 3,289 or 60.7 percent were attributed to accidents in the home. It is not claimed that this study is representative of the entire State but that it is indicative of the home accident problem. For instance, almost two-thirds of the total home injuries occurred to children aged 0-14, and it is felt that this distribution of accidents among the age groups differs from the actual distribution of the general population in the State. It may be that a smaller percentage of individuals in the older age group are enrolled in Blue Shield

ALL ACCIDENT DEATHS, 1955 - - - - - - - - - - - 93,000

Over 20 percent of these deaths were from falls, and over 70 percent of all accidental deaths from falls occur in the home.

	Death Total	Change from 1954	Population Death Rate*
FALLS	19,800	%	10.2



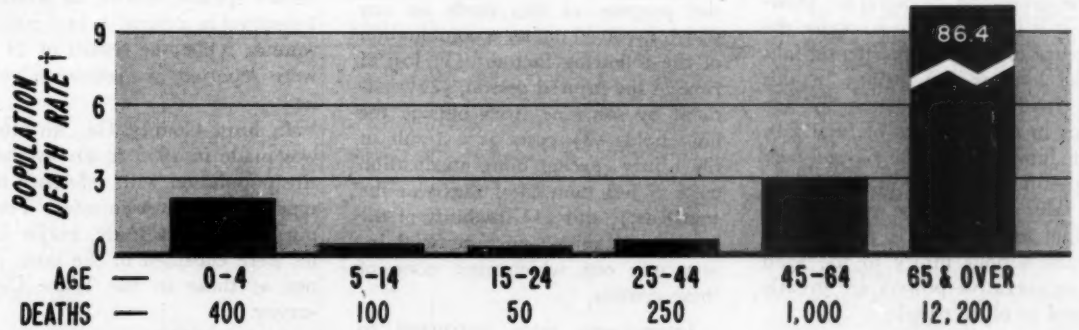
*Per 100,000 population, adjusted to the age distribution of the population in 1940.
†Deaths per 100,000 population in each age group.

Includes all fall deaths except those in or from railway-, road-, water-, or air-transport vehicles, or those occurring in cataclysms. Falls are the leading cause of non-motor-vehicle accidental deaths of persons 45 years and over.

ALL HOME ACCIDENT DEATHS - - - - - - - - - - - 28,000

About one-half of all home accident deaths were from falls.

	Death Total	Population Death Rate*
FALLS	14,000	8.5



*Deaths per 100,000 population.
†Deaths per 100,000 population in each age group.

Changes in deaths were: from 1954, +1%; from 1949, —15%.

More than half the falls of elderly people are on the same level; less than half from one level to another.

The above approximations were taken from the 1956 edition of *ACCIDENT FACTS*, published by the National Safety Council and compiled by the council's Statistics Division based on data from the National Office of Vital Statistics and State health departments.

or that information about an accident's occurring from lack of intelligent action was more readily supplied when such an accident occurred to a child than when it occurred to an adult.

A total of 1,643 home injuries in this study, or about 50 percent, were caused by falls, which were the most frequent type of accident in all age groups except 15-24 years and 25-44 years. By far the greatest number of falls occurred in the 0-4 age group (626), while relatively few occurred in the 65-and-over age group. A partial explanation is cited in the preceding paragraph. However, it is interesting to compare the incidence of nonfatal accidental falls in the various age groups in this study with the incidence in age groups in other studies of fatal falls which indicate that the 65-and-over group suffers the largest number of fatal falls. This may be explained by the fact that a fall is more likely to cause serious injury to the aged and recuperative powers are greatly lessened in older people.

A significant increase in the number of falls was noted in the summer months of April, May, June, July, and August.

Information relative to medical treatment costs and length of disability was obtained about some of the accidental injuries reported (including falls). Total medical payments reported were $98,196.11 or an average of $31.35 per injury. The number of days individuals were unable to work or play normally was reported as an average of 10.8 days per injury.

MANNER OF INJURY, BY AGE, AND SEX: REPORTING STATES, 1952-53

(PROVISIONAL)

MANNER OF INJURY	All ages	Under 1 year	1 Year	2 Years	3 Years	4 Years	Under 5 Years	5-9 Years	10-14 Years	15-24 Years	25-44 Years	45-64 Years	65-79 Years	80 years and over	Not stated
Total	8,969	1,023	337	209	167	131	1,867	272	167	211	636	950	2,030	2,823	13
Male	4,220	557	204	110	92	60	1,023	135	98	120	409	596	859	975	5
Female	4,749	466	133	99	75	71	844	137	69	91	227	354	1,171	1,848	8
Falls	4,410	38	31	22	13	6	110	21	6	8	74	340	1,423	2,423	5
Male	1,631	25	19	12	6	2	64	13	4	6	45	193	525	779	2
Female	2,779	13	12	10	7	4	46	8	2	2	29	147	898	1,644	3
Fall from higher level	1,290	37	26	16	9	5	93	16	6	6	58	207	431	471	2
Male	664	25	15	9	4	2	55	10	4	4	40	136	220	193	2
Female	626	12	11	7	5	3	38	6	2	2	18	71	211	278	-
Fall on same level	2,862	-	4	4	3	-	11	5	-	1	10	112	909	1,811	3
Male	876	-	3	2	1	-	6	3	-	1	3	46	275	542	-
Female	1,986	-	1	2	2	-	5	2	-	-	7	66	634	1,269	3
Fall, level unspecified	258	1	1	2	1	1	6	-	-	1	6	21	83	141	-
Male	91	-	1	1	1	-	3	-	-	1	2	11	30	44	-
Female	167	1	-	1	-	1	3	-	-	-	4	10	53	97	-

Table 1

Studies in Georgia

Two tabulations of unusual interest are recorded in the results of a survey of nonfatal home injuries conducted in 1954 in Ware County, Ga., through a sampling of the entire county with reference to major injuries occurring in the past year and minor injuries in the past week.

Major injuries were defined for the purpose of this study as any which involved one or a combination of the following factors: (1) loss of time of the injured person, (2) treatment by someone from outside the household, (3) costs as a result of the injury (except home medication costs of less than $1 if that was the total cost), and (4) disability of the injured. A minor or superficial injury was one which met none of these criteria.

Interviewers were instructed to record separately their opinions of the type or quality of housekeeping for the inside and outside of the home in which an injury occurred. While the value of these subjective opinions is dubious, rates of injury among the population in the various quality groups indicate a consistent pattern of injury rates which increased with poorer quality of housekeeping, as shown in table 2. The same general pattern holds for minor and major injuries. While not conclusive, these data indicate that more research might uncover relationships between housekeeping habits and home injury rates.

Of interest in this study also was a tabulation showing the types of injuries resulting from falls. Of a total of 73 falls (30 from a higher level and 43 on same level), 19 resulted in a bruise, bump, smash, or crush. Seventeen resulted in cuts, scratches, or abrasions, while 11 resulted in fractures or chips. Ten falls caused sprains, strains, or wrenches; 1 resulted in a burn; 1, in a puncture wound; while the results of 14 falls were reported as "unknown" injuries.

In Butts County, Ga., an attempt was made in 1955 to survey the entire population with reference to all types of nonfatal injuries. For the purposes of this study, major injuries were classified in the same manner as those in the Ware County survey.

A total of 144 major falls occurred during the study year of which 4 were occupational, 56 were public, 2 unknown, and 82 were home falls.

Maryland Study of Hospitalized Injuries

After completing a study of fatal home accidents in 1954, the Home Accident Prevention Unit of the Maryland Department of Health felt

the need for further study of the nonfatal home accident picture. One segment of the accidental injury problem was selected for study—home accidents producing injuries severe enough to require admission of victims to general hospitals for inpatient treatment. Six general hospitals serving approximately 335,000 people were selected in an attempt to limit the study of areas wherein it was possible to determine with some degree of accuracy the population served. Hospitals notified county health departments when a study patient was admitted, and the patient was interviewed by a public health nurse either during his hospital stay or after his return home. Data for the first year of the study only (September 1, 1954, to August 31, 1955) is available.

Seventy-six percent of the home injuries studied were caused by falls. In previous Maryland studies falls have also led as a cause of home injury, both in a study of fatal accidents (38.9 percent) and in a study of accidents requiring emergency room treatment only (41 percent). Individuals over 35 years were involved in 74 percent of all falls, while all other types of accidents were concentrated in the ages under 35 with the exception of being struck by, or striking, objects in which case the accidents were evenly distributed. Seventy-one of the falls affected females.

September through December was the period during which 44.6 percent of all falls occurred. The data on hand provide no readily apparent explanation, although certain environmental conditions and acute upper respiratory infections were thought to have contributed to 8 of these cases. By eliminating these 8 falls, it is found that 40.8 percent of falls happened in 33.3 percent of the year, which indicates that known seasonal influences do not account adequately for the higher incidence of falls.

Falls on the same level occurred most often in kitchens, hallways, and yards. For falls from a different level, stairs led the list with yard, bedroom, porch, and kitchen following. Of the 62 falls experienced while walking on the same level, 55 occurred to those 35 and over, while, of 54 falls, while ascending or descending, 45 were in this same age group.

Twenty-nine percent of the falls occurred while walking on the floor or ground; 25 percent, while going up or down stairs; and 13 percent, while standing at a height above floor or ground level. Of the 151 females injured in home falls, 47 percent were over 65 years, and 37 percent were from 35-65 years. Thirty-three percent fell while walking on a level, and 30 percent, while going up or down stairs.

In the ages under 15 years, 70 percent of the injuries from falls occurred to boys. Falls from a height such as roof or ladder for those over 15 or a tree, porch, or slide for those under 15 accounted for 36 percent of these injuries.

An attempt was made to evaluate personal (health) and environmental factors contributing to these falls, and, while these factors are only the opinions of victims and interviewers, the preponderance of personal over environmental factors was striking and reinforces the impression gained in other Maryland studies—that the characteristics of the individual and his use of his environment are more important in the causation of accidents than is the environment itself.

The 213 home falls reported were analyzed for contributing factors. Multiple factors for a single fall were included where found. Of the 413 contributing factors ascertained, 216, or over one-half, were personal in nature and 110 were environmental. Poor judgment or lack of skill contributed to 82 falls; this factor was involved in 17 falls in the 1-4 age group and in 30 falls in the 55-64 age group. Chronic disease or disability contributed to 58 falls; 40 falls in the 55-and-over age group can be partly attributed to this factor. Infirmity or weakness was a contributing factor in 24 falls including 16 in the age group 65-and-over. Of the environmental factors, a slippery surface or object contributed to 48 falls; inadequate light, an obstructed path, and faulty stairway construction were involved in 18 falls each.

Table 2.

HOME INJURY RATES BY TYPE OF HOUSEKEEPING WARE COUNTY HOME INJURY SURVEY, AUGUST, 1954

Place and Type of Housekeeping	Population	Rate per 1,000 Persons		
		All	Major in* past year	Minor in past week
Total all types	3,053	106.8	34.4	72.4
INSIDE OF HOUSE				
Very well kept	385	90.9	28.6	62.3
Well kept	1,042	105.6	30.7	74.9
So - So	883	109.9	36.2	73.6
Carelessly kept	313	108.6	35.1	73.5
Very carelessly kept	150	140.0	40.0	100.0
Not stated	280	0	0	0
YARD AND OUTSIDE				
Very well kept	385	88.3	26.0	62.3
Well kept	1,004	107.6	35.9	71.7
So - So	1,055	103.3	30.3	73.0
Carelessly kept	377	132.6	47.7	84.9
Very carelessly kept	171	128.7	40.9	87.7
Not stated	61	0	0	0

* Injuries to visitors excluded.

FALLS HURT—BE ALERT!

HERE ARE EXCERPTS from some of the National Safety Council's materials which might be helpful in a campaign on falls. For further details about these materials, ask for the council's *Special Service Guide* for the National Campaign for the Prevention of Falls.

". . . we changed the bedroom around, so that you don't have to

Service guide for campaign to prevent falls.

skitter around the furniture to get from the bed to the door—*and* your grandfather tacked down the throw rugs. I have a light so I can see where I'm going at night . . ."—*Getting On—Safely.*

". . . 3. Falls happen for many reasons. The condition of the floor might be responsible . . . whether it is old, new, sloped, has cracks or

An illustration from Safety Education Data Sheet No. 61, *Floors in the Home.*

splinters, missing, loose or broken tiles.

"4. There might be foreign materials on the floor . . . spilled liquids, children's toys, sand from out-of-doors . . . any material dropped, collected or scattered there which should have been cleaned up . . ."—*Floors in the Home, S*afety Education Data Sheet No. 61.

". . . 2. The best protection against slips and falls in winter walk-

An illustration from *Getting on—Safely*, N.S.C. leaflet.

ing is the elimination of slippery surfaces.

"3. Where possible, snow and slush should be removed from sidewalks, outside stairs and paths before it is trampled and frozen into a solid mass.

"4. If ice forms and cannot immediately be removed, sand, gravel or fine cinders should be sprinkled on the surface . . ."—*Winter Walk-*

An illustration from Safety Education Data Sheet, 5, *Falls.*

ing, Safety Education Data Sheet—No. 58.

". . . 4. *Where*—Fatal falls to the child under five years of age are often on stairs, or from windows and porches. In the adventurous ages, 5 to 14, many deaths result from falls in sports and play, from trees and roofs, down steep embankments, as well as from windows and on stairs. In the 15-to-64-year age group, the highest number of fatal falls occurs on stairs and steps. Many others are from ladders and scaffolds, on streets and sidewalks and on floors. In the over-65-year age group, falls on stairs and on floors account for the most fatalities. . . ."—*Falls,* Safety Education Data Sheet—5.

"Abandoned Mines, Open Pits, Etc.

". . . 2. Common dangers found in exploring openings, such as mines and open pits, are listed by the Ari-

zona Small Mine Operators association as follows:

". . . (b) Broken or rotten ladders, steps, stairways, or any other means for getting in and out. If any of these means of entrance or egress should break, a long fall down a shaft or other opening could result. . . .

"Excavations

"3. Playing in, or around, ditches, excavations or the piles of dirt from such digging operations always invites an accident . . . and a fall into an excavation could result in broken arms, legs, neck, etc. . . .

"Quarries

". . . 10. The very nature of quarries and quarrying operations rules them out as places to play. Danger of fatal falls . . . as well as danger of drowning in deep pools . . . are the main hazards of these strictly unauthorized 'play' areas. . . ."—*Unauthorized Play Spaces,* Safety Education Data Sheet No. 48.

"WRONG

"The top of a step ladder is not meant for standing. There is danger of losing one's balance and falling.

"RIGHT

"When ladder of proper length is used, person can work more conveniently and safely." The above two drawings with captions are from *Do's and Dont's of Ladder Safety for Home and Farm.*

POSTERS

The National Safety Council also has posters suitable for use in a campaign for the prevention of falls. For further information, consult the council's *1956 Directory, Occupational Safety Posters.*

NSC poster
0401-A 8½ by 11½ inches

NSC poster
0173-A 8½ by 11½ inches

KIT

For principals, teachers, PTA officials and others wishing to combat fall causes in schools, playgrounds, and centers of youth and child activity, the School and College Division of the council has produced a special packet of materials. Included are:

NSC poster
8877-A 8½ by 11½ inches

A checklist for school participation in the National Campaign for the Prevention of Falls.

Safety Education Data Sheets: No. 5, *Falls;* No. 22, *Safety in the Gymnasium;* No. 24, *Places of Public Assembly;* No. 29, *Play Areas;* No. 43, *Hiking and Climbing;* No. 48, *Unauthorized Play Spaces;* No. 58, *Winter Walking;* No. 61, *Floors in the Home;* No. 63, *Educating Pupil Passengers;* No. 69, *Playground Apparatus;* No. 71, *Baseball.*

NSC poster
0537-B 17 by 23 inches

Safety Education Reprints: *Safety and Fun Synonymous, Checklist for Safety, Playground Surfacing—.*

Two colorful posters.

A booklet, *Falls Aren't Funny.*

Falls on and off the job

A STUDY COVERING compensated injuries to workers in six States for the year 1954 showed that falls caused 18 percent of all disabling work injuries and were among the most costly injuries incurred. This gives us another example of why the various conferences of the National Safety Council are sponsoring the current National Campaign for the Prevention of Falls.

Falls off the job are of importance and concern to industry. According to data received from companies reporting to the Off-the-Job Committee of the Industrial Safety Conference, this type of fall alone caused more lost time injuries and almost half as many days lost as all of the work injuries reported by the same companies for the same period of time.

One group, employing more than 100,000 people, showed the following experience for the first 9 months of 1956:

Employee-months exposure	922,022
Total number of lost time O-T-J injuries	2,366
Total number of lost time work injuries	464
Total number of lost days due to O-T-J injuries	42,530
Total number of lost days due to work injuries	19,279
Number of O-T-J falls causing lost time	715
Number of home falls causing lost time	489
Number of public falls causing lost time	226

From provisional report of fatal home accidents, 1952 and 1953, prepared by N.S.C. and PHS.

FALLS BY AGENT AND LEVEL

	TOTALS	SAME LEVEL	HIGHER LEVEL	UNSPECIFIED
TOTALS	4,410	2,862	1,290	258
None or not applicable	1,374	1,374	—	—
Stairs	752	1	747	4
Bed	519	354	161	4
Chair	471	399	70	2
Rug	160	160	—	—
Window	73	4	69	—
Floor	60	60	—	—
Ice or snow	52	49	—	3
Furniture (except bed or chair)	52	41	10	1
Step ladder	51	1	50	—
Other ladder, scaffold, etc.	26	—	26	—
Bathtub or shower	21	20	1	—
Roof	20	—	20	—
Fence or tree	16	5	11	—
Hole in ground	10	2	7	1
Dry, paved sidewalk	8	8	—	—
Ground	7	7	—	—
Other	738	377	118	243

From provisional report of fatal home accidents, 1952 and 1953, prepared by N.S.C. and PHS.

FALLS BY ACTION AND LEVEL

	TOTALS	SAME LEVEL	HIGHER LEVEL	UNSPECIFIED
TOTALS	4,410	2,862	1,290	258
Walking on levels	1,526	1,444	111	7
Act of rising or sitting	711	677	31	3
Walking on stairs	526	—	526	—
Housework	253	133	114	6
Standing	204	161	42	1
Sitting	148	76	71	1
Sleeping or lying down	133	—	133	—
Other	909	371	262	240

A second group involving 1,037,901 employee-months showed the following off-the-job accident experience:

Total number of lost time O-T-J injuries	2,046
Total number of lost days due to O-T-J injuries	34,436
Number of O-T-J falls causing lost time	491
Number of home falls causing lost time	395
Number of days lost due to O-T-J falls	14,049
Number of days lost due to home falls	9,293
Number of days lost due to public falls	4,756
Number of public falls causing lost time	96

Normally, we are prone to think in terms of fatal falls and their relationship to the elderly and the home. However, the off-the-job experience reported above indicates the need for concern and activity with nonfatal falls in the home and public places and with other age groups.

Of interest also is a provisional report of fatal home accidents in 1952 and 1953 submitted by 16 State vital statistics officers. It was prepared jointly by the National Safety Council and the U.S. Public Health Service. A total of 8,969 fatal accidents were tabulated, of which 4,410 were due to falls.

While the majority of the victims were either over or under normal employment age, it is quite likely that the agents, actions, locations and fall levels involved, could also contribute to the nonfatal disabling injuries of all age groups. The tables have been taken from the provisional report.

From provisional report of fatal home accidents, 1952 and 1953, prepared by N.S.C. and PHS.

FALLS BY LOCATION AND LEVEL

	TOTALS	SAME LEVEL	HIGHER LEVEL	UNSPECIFIED
TOTALS	4,410	2,862	1,290	258
Bedroom	1,266	1,031	205	30
Living room	419	386	30	3
Kitchen	413	373	35	5
Stairs outside	382	—	382	—
Stairs inside	330	—	330	—
Yard	303	218	71	14
Bathroom	202	180	12	10
Porch	197	92	94	11
Hall	165	153	12	—
Dining room	139	126	12	1
Walks & driveways	43	40	3	—
Roof	27	—	27	—
Basement	14	7	4	3
Other	510	256	73	181

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HOW FIREARM ACCIDENTS OCCUR

FIREARM ACCIDENTS in the United States take an annual toll of more than 2,200 lives or 1.4 per 100,000 population.* They rank fifth as a cause of fatal accidental injury, being outnumbered by motor vehicle mishaps, falls, fires, and drownings.

Nearly two fifths of the deaths from firearm accidents each year occur in the three-month period from October through December. November is the peak month because of the large number of people who go hunting at that time. The average daily death toll from firearms in November is about 80 percent greater than the annual daily average; in October and December the excess is about 40 percent.

The mortality from firearm accidents is largely concentrated among males, and is at a maximum among teen-age boys. This is illustrated by the experience among the Industrial policyholders of the Metropolitan Life Insurance Company during 1953-55. Among male policyholders the annual death rate from this cause averaged 1.6 per 100,000, or 8 times that among females. The mortality rate for males rose from .4 per 100,000 at ages 1-4 years to a peak of 3.9 per 100,000 at ages 15-19, after which it decreased progressively with advance in age. The details may be seen in the accompanying chart.

An insight into the circumstances under which firearm accidents occur is provided by the death claim records of 302 Industrial policyholders who were killed in such accidents during 1953-55. No less than three fifths of these victims were injured in and about the home, while nearly one fourth of the total lost their lives in hunting accidents. Most of the remaining deaths were associated with outdoor activities other than hunting, an appreciable number occurring during target shooting. Rifles and shotguns were involved in nearly three out of every four casualties in this study, pistols and revolvers accounting for the others.

The table . . . gives a ready picture of the important role that inexperienced and faulty handling of weapons plays in the toll from firearm accidents. Of the 173 deaths in and about the home, 49 resulted from people playing with weapons; the majority of these victims were children under 15 years of age. An additional 25 lives were lost because guns were accidentally discharged while being examined or demonstrated, and nearly as many persons were fatally injured when firearms went off as they were being cleaned or repaired. In a considerable num-

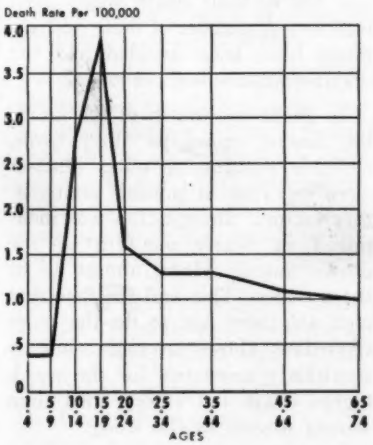
NUMBER OF DEATHS FROM FIREARM ACCIDENTS
According to Place of Occurrence and Activity of Person Discharging Gun
Industrial Policyholders, Metropolitan Life Insurance Company,* 1953-55

Place of Occurrence and Activity	Total	Weapon Discharged By		
		Victim	Another Person	Unspecified
Total	302	119	148	35
Home	173	81	77†	15
Playing with weapon	49	18	31	—
Examining or demonstrating weapon	25	9	16	—
Cleaning or repairing weapon	22	14	8	—
Russian roulette	11	11	—	—
Picking up or setting down weapon	9	9	—	—
Loading or unloading weapon	9	7	2	—
Shooter tripping or falling	7	6	1	—
Scuffling for possession of weapon	5	1	4	—
Hunting	72	24	45‡	3
Walking into line of fire, or unseen by shooter	11	—	11	—
Shooter tripping or falling	10	7	3	—
Mistaken for game	9	—	9	—
Picking up or setting down weapon	7	6	1	—
Carrying or pulling weapon through fence	4	4	—	—
Other and Unspecified	57	14	26	17
Playing with weapon	12	5	7	—
Walking into line of fire, or unseen by shooter	6	—	5	1

*Exclusive of the Pacific Coast and Canada.
†Weapon discharged by member of victim's family in 43 instances.
‡Weapon discharged by member of own hunting party in 44 instances.
Note: Only the activities causing an appreciable number of deaths are listed in detail.

*The above has been reprinted from *Statistical Bulletin*, vol. 37, pp. 6-8, September 1956, published by the Metropolitan Life Ins. Co.

FATAL FIREARM ACCIDENTS
Death Rate per 100,000 Males, by Age
Metropolitan Life Insurance Company
Industrial Policyholders, 1953-55



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ber of cases, the person responsible for the accident actually pointed the gun at the one fatally wounded; not a few of the deaths were attributed to "unloaded guns." At least 11 of the deaths in the home were caused by "Russian roulette," a game in which the participant spins the cylinder of a gun containing but one cartridge and then points the weapon at his head and pulls the trigger on the chance that it is opposite an empty chamber.

The 72 deaths sustained in hunting accidents were due to a variety of circumstances; the most common were persons being unseen or walking into the line of fire, hunters tripping over roots or other objects, and hunters mistaking the victims for game. Other fatal injuries occurred when loaded rifles and shotguns were picked up, set down, or handed to other persons, and when attempts were made to pull such weapons over or through fences. Three fifths of the fatally injured hunters in this study were killed by the weapons of their companions.

The "other" fatal firearm accidents in the table accounted for almost one fifth of the total. In general, they resulted from the faulty handling of weapons and from the lack of common sense precautions by persons using firearms; in other instances, the victims were moving about in areas where target shooting was going on. Several children were killed while they were playing "cowboys and Indians," "draw," and other games in which loaded firearms were used.

Although firearms are handled safely by a great many people in the United States, they nevertheless account for a considerable death toll. Almost all such fatal injuries can be prevented through the exercise of greater care and caution. Firearms are not toys, yet fully one fifth of all the deaths in this study were attributed to "playing with weapons." Many lives would be saved annually if persons carrying loaded guns made sure that the safety was on, if guns and ammunition were stored out of reach of children, and if persons shooting at game were certain of their target.

ACCIDENTAL FALLS FROM WINDOWS

AN INSIGHT INTO the circumstances under which accidental falls from windows occur is provided by the death claim records of 181 Metropolitan Life Insurance Company Industrial policyholders who died in such accidents in the years 1947-1950.* Approximately four-fifths of the fatalities in this essentially urban experience were sustained in the home.

Mishaps of this type occur in every month of the year, but they are most frequent in summer, when windows are most likely to be open. Youngsters are particularly exposed to this hazard in the warm season; in this study, 11 out of the 16 children under age 15 lost their lives within the 3 months June through August. Ten of the children involved in these summer accidents were 3 years of age or younger, which underscores the hazard of leaving toddlers unsupervised near open windows. In at least three instances, preschool children were killed when they climbed upon some object near an open window. Two infants, one of 7 months and the other 10 months, fell to their death after having been placed on beds adjacent to windows.

In the 4-year period under review, there were only 3 lives lost—all boys—in falls from windows in the age group 5-14 years.

By far the largest number of deaths in falls from windows are among adults. In this study, nine-tenths of the victims were 15 years of age or over, most of them in the ages past 45. Accidental falls among adults are brought about by a wide variety of circumstances. Twelve of the fatally injured were engaged in washing windows; some of these victims momentarily lost their balance when the window jammed and could not be moved. One person was killed when a window box on which she was sitting gave way. In another instance, a heavy-set woman fell to her death as a worn window frame which she was holding to steady herself tore loose.

Many chores around the house other than washing windows can end tragically if proper caution is not exercised. These include the repair of windows or awnings, the installation of screens, hanging clothes out to dry, or taking them in, and shaking a rug out of a window. Several policyholders plunged to their death because they leaned out too far to see some person or object. Merely opening or closing a window is not without risk, especially when the one doing it is not fully awake. In some instances, people sleeping away from home apparently mistook window locations for doors. Two persons fell to their death while sleep walking. A number of these mishaps might have been avoided had the window sills not been so low.

In about one-fourth of the fatalities among grownups, dizzy spells, epileptic seizures, or other illnesses were reported as possible contributory factors. Intoxication was mentioned in nearly one-fifth of the deaths among adults, almost all of them males. This and the fact that men are more apt to do the more hazardous chores around windows probably account for the much higher death toll among men than among women in this study.

*This article is an abstract of an article from the Metropolitan Life Insurance Company's *Statistical Bulletin*, vol. 33, No. 2, pp. 6-7, February, 1952, "Accidental Falls from Windows."

"Now is the time—"

THE 1956 HOME SAFETY Inventory is now in the "home stretch." Through community and State inventory centers, program summary forms have been sent out to over 85,000 local and State clubs and organizations throughout the Nation. Responses already received have been most encouraging and informative. Local groups are enthusiastically cooperating in this important project by submitting reports of their past year's home safety activities to their community and State inventory centers.

Have you completed the program summary form for *your* organization as yet? If not, there's still time. Make it number one on your "must do" list.

The form itself is a simple one-page "checklist" type of questionnaire with a section for a narrative description of your group's home safety activities. It should take only a few minutes of your time to fill out the form, but your cooperation will help to make the record complete. Many State and community inventory centers are planning to publish a complete report of the information secured through the Inventory. Naturally you'll want your contribution to the reduction of home accidents in your community included in their report.

Chances are good that your organization, as a subscriber to the *Home Safety Review,* is involved in the home safety movement in some way. Aid in strengthening this movement by reporting your activities. The 1956 Home Safety Inventory is not aimed solely at the "big" programs or projects. The "small" activities are equally important in their contribution to the success of the home safety movement. So don't be modest about your successes or, for that matter, even your failures. We need as complete a picture as it's possible to obtain. Your report *is* important.

If by chance you've failed to receive a program summary report form, contact your local or State inventory center (see pages 12-15, Special Issue, August 1956, *Home Safety Review),* or request a form from the Home Safety Division, National Safety Council, 425 North Michigan Avenue, Chicago 11, Ill. Do it today!

1956 Citation Awards

THE NATIONAL SAFETY Council announces that it is inviting entries in its 1956 Citation Award program. This program annually recognizes outstanding traffic safety activities of organizations and individuals.

Eighteen citation awards may be presented for the 1956 calendar year —6 to individuals, 12 to organizations. Of the six individual awards one may be for a traffic program, national in scope, which is initiated by an individual. The remaining five may be for State or local projects.

Citations to organizations will be made in four classifications and may cover national, State, and/or local activity:

1. Civic-service groups.
2. Professional and trade associations.
3. Business and commercial firms.
4. Governmental organizations—civil or military.

Nominations may be made by the nominee or any individual or organization having knowledge of the nominee's activity in traffic safety.

Subscription Rates Raised

EFFECTIVE JANUARY 1, 1957, subscription rates for the *Home Safety Review* were raised. The new rates are: 1-9 subscriptions, $2.25 per subscription annually; 10-99, $2.10; 100 or more, $1.95; additional $.25 for foreign, except Canada and Pan American Union. The new single copy prices are: 1-9, $.25; 10-99, $.23; 100 or more, $.21. These rates and prices are subject to a 10 percent discount to National Safety Council members. *The Home Safety Review* is published monthly except July and August.

SAFETY VERSE

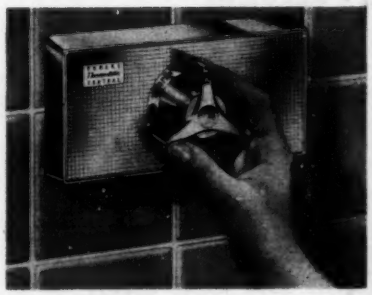
WILLIAM M. ANDERSON, who is employed by the St. Louis-San Francisco Railway Co. as a system sign painter, states that he took from their house organ *All Aboard* the following safety question and remodeled in the Anderson manner:

Are chairs, footstools, and tables arranged so that one is not liable to trip over or bump against them?

In friendly homes the guests do not
Fall over footstools, tables, chairs;
It just means tempers getting hot
And lots of furniture repairs.

Filed in V. f.
Ho 751K

PRODUCTS



Left: Tappan Electronic Range; below: Hydroguard thermostatic shower control.

ONE OF THE most important discoveries being made by housewives now cooking on the **Tappan Electronic Range** is that it is safe for children to use.

A mother who would never permit her children to come near a conventional gas or electric range says, "It didn't take me long to realize that our 10-year-old daughter could use the electronic range without danger of being burned."

Homemakers who have used the range for more than a year in preproduction field tests as well as those who have recently purchased the unit have found that microwave cooking—although it sounds mysterious and complicated—is simple and safe.

The electronic unit will not operate unless the oven door is latched. Thus, it is impossible for the user to come in contact with the microwaves that cook the food. The only heat produced is in the food. Therefore, when the dish is removed from the oven, the only heat it has picked up has come from the food—never from the cooking unit.

The electronic range actually uses the same type of radio energy which transmits the ultra high frequency signal on a television set. Because the electronic unit in the range transmits microwaves, it is licensed by the Federal Communications Commission—just like the equipment used by thousands of amateur radio operators to transmit radio signals from their homes. The electronic unit operates on 2400 megacycles and will not interfere with radios, TV, or other electronic equipment.

When microwave energy comes in contact with a substance, any one or a combination of three things can occur. It can be reflected, transmitted, or absorbed. Only when it is absorbed, does microwave energy convert into heat. Foods in the electronic oven absorb the energy and consequently become hot. Air and many (but not all) glass, china, and paper products transmit the energy, but do not absorb it. Metal reflects the energy.

Tappan engineers say perhaps the simplest parallel to microwave cooking is what happens when the sun's rays stream through a window to warm a person in their path. Although the person gets warm, the glass in the window remains relatively cool, because the glass merely has transmitted the rays.

Because the walls of the electronic oven are metal, they reflect the microwave energy. Since there is no absorption, both the walls and dish remain cool.

Microwave energy penetrates the food from all sides. It generates instant heat to depths of about 2½ inches. On the other hand, conventional cooking depends upon the slow process of conduction to carry the excessive heat exposed on the surface to the interior of the food.

The food gets hot because of the friction created by the food molecules as they rearrange themselves under the influence of microwaves. Although this reaction is quite complex, it does not create any physical changes in the food except those normally produced by heat.

The Tappan electronic range operates on 220-volt electric current, just the same as ordinary electric ranges.—Public Relations Dept., Tappan Stove Co., 250 Wayne St., Mansfield, Ohio.

*

Hydroguard.—A thermostatic safety limit protects you from scalding. It prevents flow of water to shower or tub above 110°F. Should cold water supply fail, Hydroguard instantly and completely shuts off hot water. It always maintains shower or tub temperature wherever you set it regardless of temperature or pressure changes in water supply.—Powers Regulator Co., Skokie, Ill.

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